DURBAN MUSEUM.

GENERAL GUIDE
To the DURBAN
MUSEUM

WITH 3 PLANS &
25 PHOTOGRAPHIC
ILLUSTRATIONS.

Price: Sixpence. Post Free: Ninepence

Specimens for the Durban Museum are carried free of charge from any railway station provided they are addressed to "The Curator," and marked "Specimens for the Museum."

Persons interested in Natural History and willing to assist in the development of the Museum are invited to apply to the Curator, who will be pleased to give information as to requirements and methods of preservation.

Classes of School Children in charge of teachers are conducted round the Museum by the Curator on Wednesday afternoons, when it is closed to the general public.

On these occasions the Curator explains the exhibits in a general way, or, if desired, gives short talks on special portions of the collections.

Notification of intended visits should be given a few days previously.

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GENERAL GUIDE to the
DURBAN MUSEUM

BY THE CURATOR
E. C. CHUBB.

Published by
P. Davis & Sons Limited,
Durban.
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1916.

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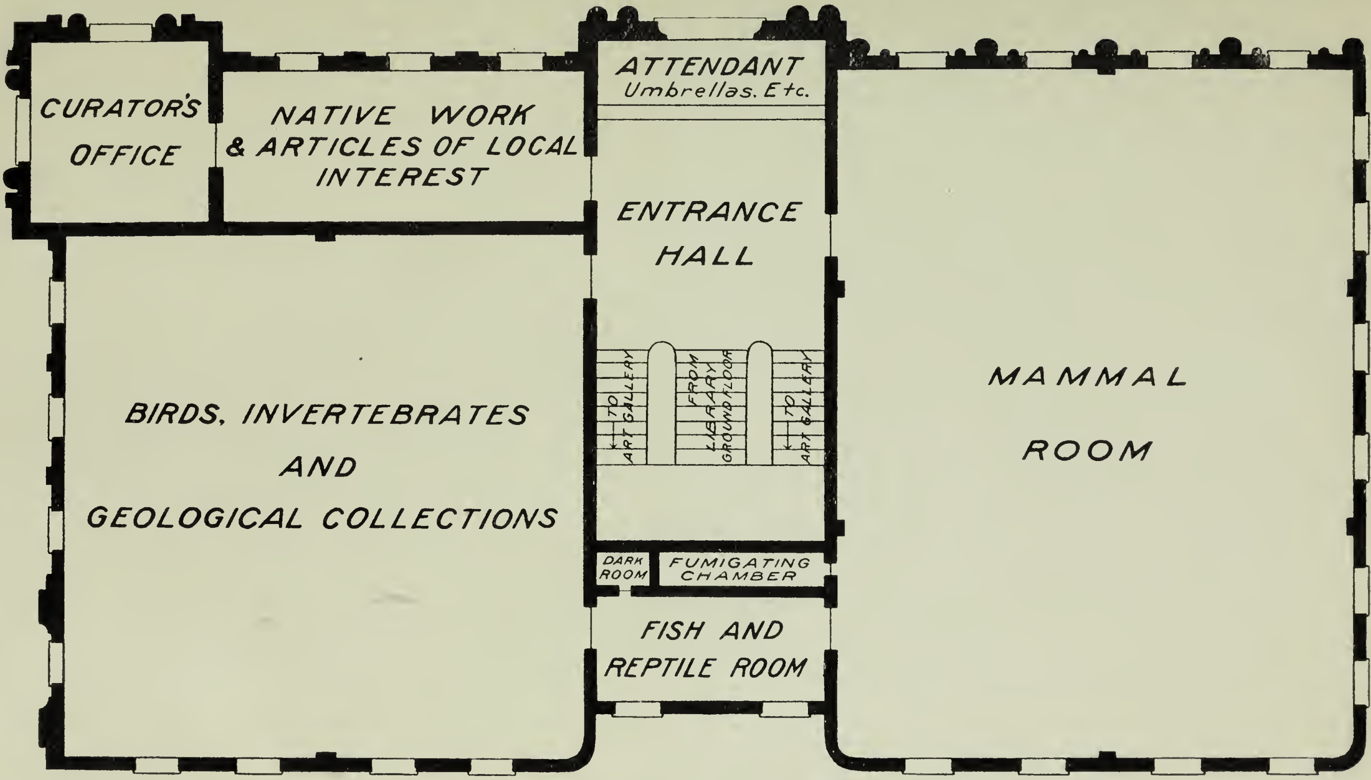
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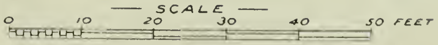
GENERAL PLAN OF MUSEUM



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PREFACE.

The purpose of this hand-book is to form a guide to visitors during their inspection of the exhibits in the Museum. Brief notes of interest regarding groups or individual specimens are given in the hope of stimulating interest in Nature, of which we in South Africa are provided with so rich and varied expressions, in the graceful antelopes, the beautiful birds, interesting insects and other creatures around us. The observation of their habits and life-histories is an ennobling study, full of interest, and the more we learn about their wonderful adaptation to the conditions which surround them, the better are we able to understand the complex problems of life which so intimately affect us.

Nor is this knowledge without practical utility for, to quote only one or two examples, during recent years the study of the life-histories of insects has led to the control of certain species that have become destructive to agricultural crops, and to others that are concerned with the spread of diseases, such as malaria, yellow-fever, sleeping-sickness, and typhoid; while the study of the lowest forms of animal life has led to a knowledge of the life-histories of the germs of disease themselves in many instances.

Further information than it is possible to give within the limits of this booklet will be found on the descriptive labels placed beside the specimens; while those who desire to take up the study of any particular branch of South African natural history are referred to the list of books on page 71.

The photographs here reproduced were taken by Mr. D. R. Boyce, a member of the Staff, with the exception of those on pages 7, 13, 29, 57, 66 and 67, which were taken by myself. The drawings of horns on page 9 were done by Miss E. Ward, who was temporarily engaged during the absence of the two Assistants on Active Service.

E. C. Chubb.

Curator.

Durban Museum.
February, 1916.

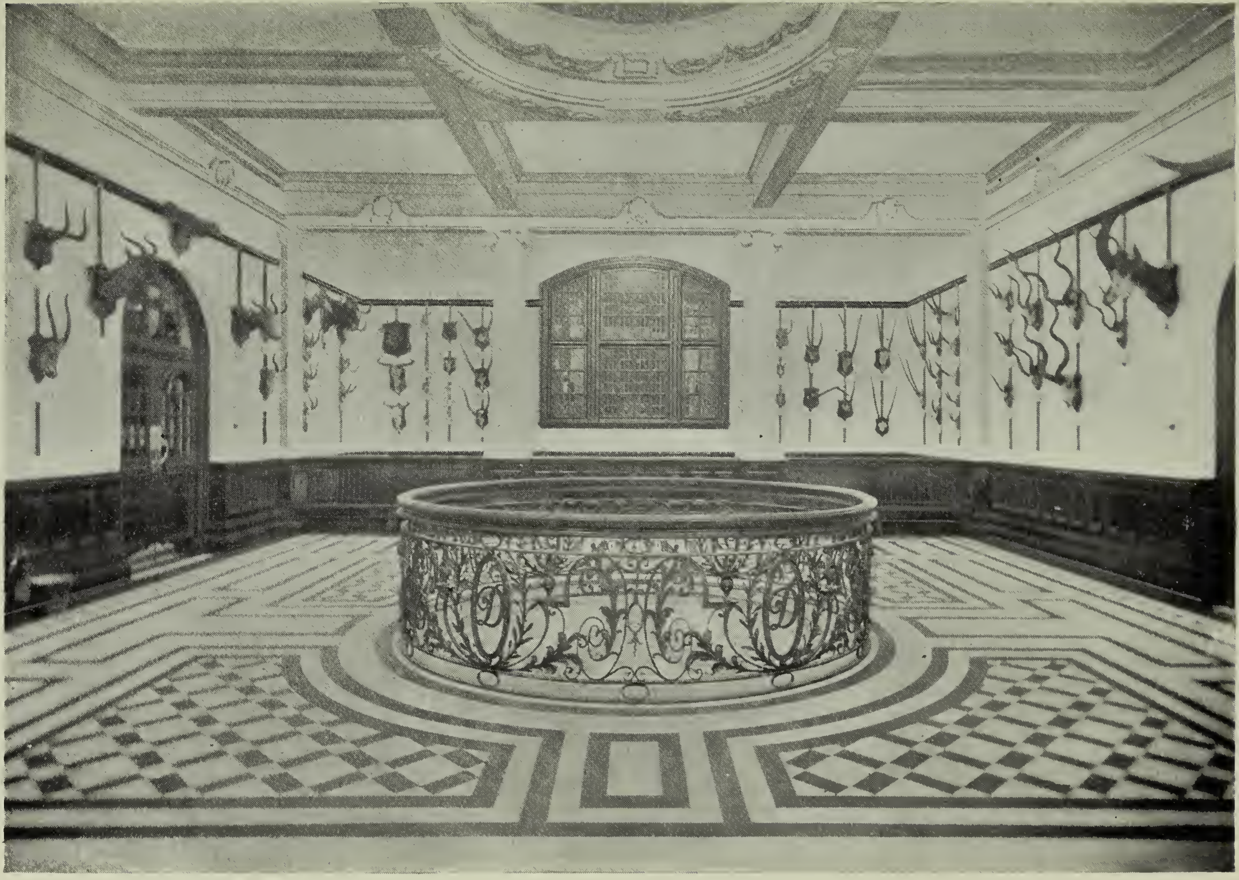
HISTORY.

The Museum was first opened to the public on 23rd July, 1887, nearly 30 years ago. It was to the initiative of the late Councillor J. S. Steel that we owe its foundation. When the old Town Hall, now the Post Office, was being built in 1883 he succeeded in getting a room provided for a future museum, and the proposal matured two years later when the formation of the Durban Museum was commenced. His own collections of natural history and other things formed a large proportion of the original exhibits, and he acted as Honorary Curator until the appointment of the late Mr. J. F. Quekett in 1895. In its former home the collections increased until the space available became painfully overcrowded, consequently when the present Municipal Buildings were erected greater accommodation was provided, comprising a floor area of roughly 20,000 square feet, at a cost of about £18,000. The collections were transferred to this, their present quarters, in 1910. At that time Mr. Quekett found it necessary to resign owing to failing health, and the present Curator was appointed.

The Museum has been principally built up by voluntary contributions, and amongst the numerous donors the names of Councillor Steel, several members of the Millar family and Colonel H. C. Harford, C.B., stand out as chief contributors.

The aim as far as the zoological collections are concerned is to make them as representative as possible of the South African fauna, and to restrict ourselves to only foreign specimens that are specially interesting, or representatives of groups which do not occur in the sub-continent. An exception, however, is made with the collections from India, Switzerland and Malta, that have been made and presented by Col. Harford, which form special exhibits in themselves.

In addition to the collections at present exhibited there are collections of coins and stone-implements, awaiting the provision of cases, and extensive study collections of small mammals, birds, reptiles, insects, etc. stored away which may be consulted by persons specially interested on application to the Curator. Amongst the latter is the Barker collection of South African beetles which contains nearly 12,000 specimens, and many of the families represented have been worked out by recognised authorities.



ENTRANCE HALL

ENTRANCE HALL.

HORN COLLECTION.

On the walls of the Entrance Hall will be seen a collection of horns of African antelopes. All the South African species are represented, in most instances by several examples, and there are also other kinds from British East Africa and the Soudan. Below is given a list of the measurements of the best horns in the Museum collection compared with the record dimensions :—

Measurements of Horns.

(In inches.)

	Best in Museum		Record*
Cape Hartebeest	22¼	(Length on front curve)	25¾
Lichtenstein Hartebeest ...	16½	,, ,, ,, ,,	24¾
Bontebok	15⅛	,, ,, ,, ,,	16⅜
Blesbok	15½‡	,, ,, ,, ,,	18¼
Sassaby	13	,, ,, ,, ,,	16½
Black Wildebeest or White-tailed Gnu	22 ‡	,, ,, ,, ,,	30⅞
Blue Wildebeest or Brindled Gnu	30 ‡	(Greatest width outside)	33½
Duiker	5 ‡	(Length on front)	6½
Red Duiker	2⅜	,, ,, ,,	3⅞
Blue Duiker (Piti)	2 ‡	,, ,, ,,	2½
Klipspringer	4⅛‡	,, ,, ,,	5⅜
Oribi	5½‡	,, ,, ,,	7½
Steenbok	4⅛	,, ,, ,,	6⅞
Grysbok	2½‡	,, ,, ,,	4⅞
Livingstone's Antelope ...	3⅜‡	,, ,, ,,	4⅝
Waterbuck	30	,, ,, ,,	36¼
Lechwe	29¼	,, ,, ,,	34½
Puku	16½	,, ,, ,,	20¼
Reedbuck	16½	(Length on front curve)	18
Rooi Rhebok or Mountain Reedbuck	7⅛	,, ,, ,, ,,	8⅞
Vaal Rhebok	8½	(Length on front)	11½
Impala	25	(Length on front curve)	30
Springbuck	12½	,, ,, ,, ,,	19
Roan Antelope	28 ‡	,, ,, ,, ,,	37¼
Sable Antelope	43	,, ,, ,, ,,	50⅞
Gemsbok	38¾	,, ,, ,, ,,	47½
Bushbuck	17½‡	,, ,, ,, ,,	19½
Inyala	28¼	,, ,, ,, ,,	31⅛
Sitatunga	25 ‡	,, ,, ,, ,,	35⅞
Kudu	54	(Length on outside curve)	64
Eland	27¼	(Length in straight line)	39½
Buffalo	45	(Greatest width outside)	49

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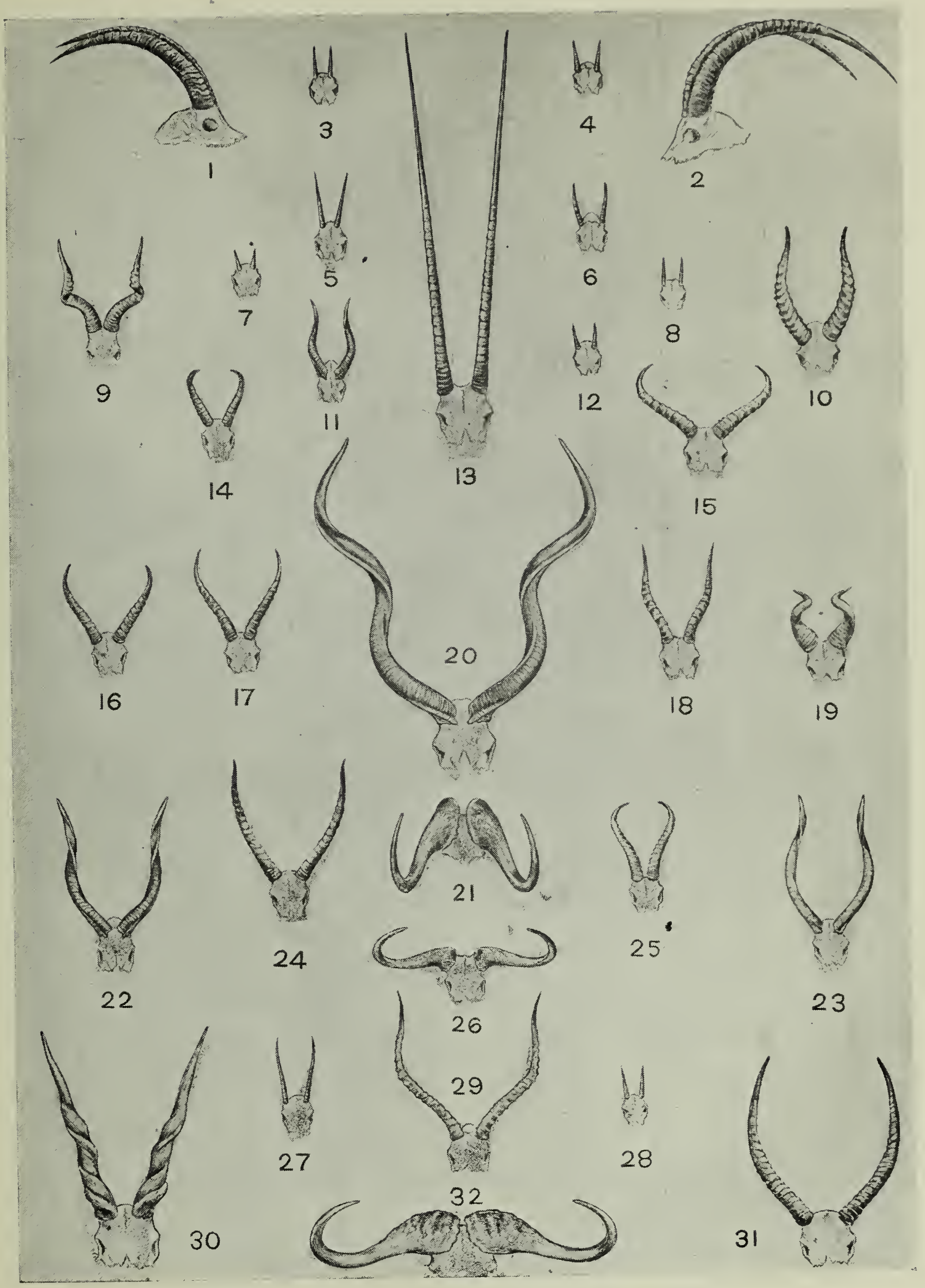
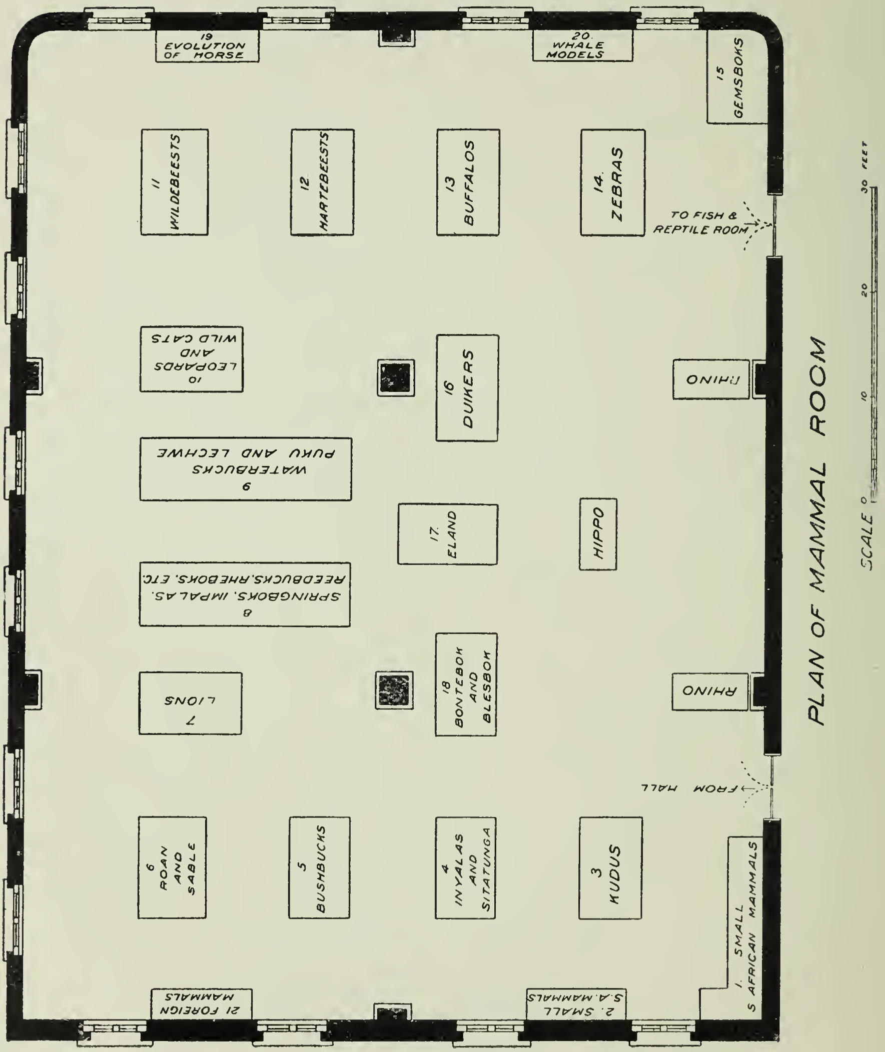
* Quoted from Rowland Ward's "Records of Big Game," (4th edition, 1903).
‡ On stuffed specimens in Mammal Room.



HORNS OF SOUTH AFRICAN ANTELOPES.

1—Roan. 2—Sable. 3—Steenbok. 4—Livingstone's Antelope. 5—Duiker. 6—Oribi. 7—Blue Duiker or Piti. 8—Grysbok. 9—Cape Hartebeest. 10—Puku. 11—Bushbuck. 12—Red Duiker. 13—Gemsbok. 14—Rooi Rhebok or Mountain Reedbuck. 15—Sassaby. 16—Reedbuck. 17—Blesbok. 18—Bontebok. 19—Lichtenstein Hartebeest. 20—Kudu. 21—Black Wildebeest. 22—Sitatunga. 23—Inyala. 24—Lechwe. 25—Springbuck. 26—Blue Wildebeest. 27—Vaal Rhebok. 28—Klipspringer. 29—Impala. 30—Eland. 31—Waterbuck. 32—Buffalo.

A door on the right of the Entrance Hall leads into the Mammal Room, a large rectangular hall measuring 90 feet by 70 feet.



MAMMAL ROOM

This contains, as its name implies, the mammals, that is to say those warm-blooded vertebrate animals which suckle their young and are clothed with hair.

SOUTH AFRICAN MAMMALS.

Monkeys.

The smaller South African mammals are arranged in a series in wall-cases Nos. 1 and 2 on the left of the doorway on entering. At the beginning of Case 1 will be found representatives of the three South African monkeys, the Vervet, the Samango, and Sykes Monkey, of which the first-named is the most familiar, being commonly seen in troops in the " Bush " on the outskirts of Durban. The skin of the Samango is very highly prized by the Zulus, and in former times it formed the distinctive dress of one of their " impis " or regiments. A fine male of the common South African baboon, the Chacma, is to be seen on the floor of the case; while both species of Lemurs, better known perhaps as Night Apes or Bush Babies are represented.

Bats.

The Bats follow next in order. They may be divided into two distinct groups—one consisting of the large fruit-eating kinds and the other of the smaller species which feed on insects. The former group is represented by the Epauletted Fruit Bat, while several species belonging to the latter are to be seen. Bats are the only mammals that can really fly, for the motion of the so-called flying-squirrels, flying-lemurs and flying-opposums is only a gliding movement. it is not true flight. The wing of the bat is formed of thin, practically bare skin, supported by greatly elongated " fingers," for all the parts of the arm and hand of other mammals can be traced in the bat's wing.

Hedgehogs.

The group which comes next comprises the Golden Moles, the Hedgehogs and Shrews, collectively known as the insect-eating mammals. The Elephant Shrews, of which one species is shown, derive their name from their long trunk-like snouts. They are pretty little creatures, and interesting to watch when alive, as they hop about over the rocks on kopjes, or in kloofs, in bright sunshine. One species of Hedgehog is found in South Africa. It occurs in certain parts of the Cape Colony, the Orange Free State and Transvaal, but it is not found in Natal, at any rate in the coast districts. There are many kinds of Shrews or Shrew-mice, but they are so much alike that it is difficult to distinguish one from another. In outward appearance they bear a great resemblance to mice, although they have more pointed snouts; but a glance at their teeth will at once reveal the difference

Moles.

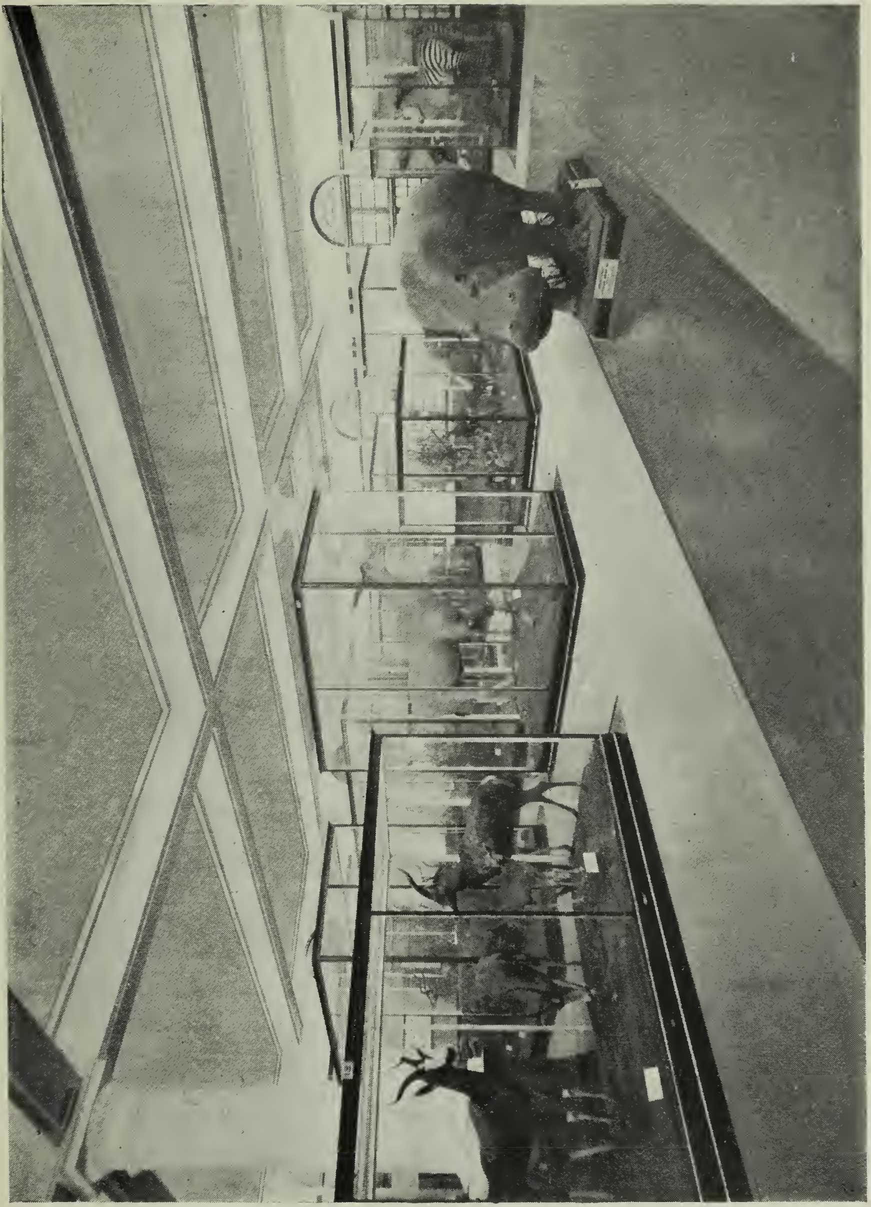
between them and the rodents. There are two distinct classes of South African moles, viz:—The Golden Moles, which belong to the present group and are related to the European Mole; and the Rodent Moles which are relatives of the rats and mice. Besides the difference in teeth, these two classes can at once be distinguished by the fact that the Rodent Moles have tails, which are lacking in the Golden Moles.

Cats.

Mungooses.

Jackals.

The flesh-eating animals are represented by quite a number of species. At the head of this group is the Lion, of which a fine pair is to be seen in another part of the room, in Case No. 7. A corresponding case on the other side of the room, No. 10, contains other members of the cat tribe, viz:—the Leopard, the Serval, the Caracal and the Wild Cat. In this same case is an example of the Cheetah, a creature which grows almost to the size of a leopard, but is more slenderly built, and its spots, unlike those of the leopard, are solid, while its claws cannot be drawn in as can those of the true cats. Returning to Case No. 1, a good example of the African Civet Cat from Beira, Portuguese East Africa, is shown. This animal has a strong musk odour and at one time the natives of West Africa, where it is also found, used to capture it alive for the purpose of collecting the scent, which is formed by glands near the root of the tail. This substance eventually found its way to Europe and was formerly in great demand for perfumery. The Civet is followed by an example of one of the species of Genets. They are spotted animals, with slender bodies, short legs, and long tails, and have the reputation of being great poultry thieves. Of the many mungooses, the following species are to be seen in the series, viz.:—the Large Grey Mungoose, Red Mungoose, Water Mungoose, White-tailed Mungoose and Banded Mungoose. Animals of somewhat similar build are the Meerkats, of which the Bushy-tailed and Slender-tailed species are to be seen. We come next to the Aard Wolf, or Maanhaar Jackal, at once recognisable by its transverse stripes and long mane, which extends along the back. Its food is believed to consist of insects, chiefly ants. On the floor of the case is to be seen an example of the Spotted Hyæna, the other South African species, the Brown Hyæna or Strand Wolf being unrepresented. Other specimens on the floor of the case are the Black-backed or Silver Jackal, the Side-striped Jackal, the little Silver Fox from Bechuanaland and the Hunting Dog or Wild Dog. The last named animal is a notorious destructor of game, hunting in packs



General View of Mammal Room

Otters.

after the manner of the wolves in America. There are two very distinct kinds of South African Otters, a large kind which has no claws on the toes and a smaller species with well developed claws. The former is the more common species, and an example of it from Durban Bay is exhibited. Close by is a specimen of the Ratal or Honey Badger coiled up in sleeping attitude. The Muishond or South African Polecat, and Snake Muishond or South African Weasel complete the group of flesh-eating animals as they are called, but they do not all feed exclusively on flesh.

On the floor of this case are temporarily placed some of the smaller antelopes. Amongst these will be seen examples of:—the Klipspringer, a buck that lives on kopjes and is remarkable for its powers of jumping in which it rivals the European Chamois; the Oribi, which is found in parts of Natal and Zululand, although it is nowhere very common; the Steenbok, which is the commonest of all South African Antelopes; the little Grysbok; and the still smaller Livingstone's Antelope, which is only found in Zululand and the coast districts of Portuguese East Africa.

Squirrels.

Giant Rat.

Spring-Hares.

The Rodents, which come next, will be found in Case No. 2. The chief characteristic of the members of this group is the large pair of chisel-like incisor teeth, which are separated from the grinding teeth by a wide space, also by the absence of canine teeth. These features can be easily seen in the skull of the cane-rat for instance. The Squirrels, which come at the beginning of the group, are represented by the Ground Squirrel, the Grey-footed Squirrel, and the Red-headed Squirrel. On the shelf below these will be seen an example of the common South African Dormouse, of a grey colour with bushy tail. The rats and mice follow next. Of these there are between 80 and 90 different kinds native to South Africa, besides which are the Black and Brown Rats and the Common House Mouse which have been introduced from Europe. The rats and mice are very diverse in size, coloration and habits. Some live amongst rocks, others burrow in the ground and others again live in trees. Amongst the species exhibited is the Dwarf Mouse, the body of which measures hardly more than 2 inches, while near it, representing the other extreme, is the Giant Rat, which measures 15 inches without the tail. Still larger is the Cane Rat, although in spite of its name it is not a true rat. This animal is very destructive to the sugar cane along the Natal coast and consequently is killed whenever possible by the planters. Next in order come the Rodent Moles which are represented in the case by two species. The Spring-hare, of which two examples are to be seen, is very like a small kangaroo in the proportions of its limbs, and it jumps along in a similar manner. Following this is an example of the only species of South African Porcupine, and one of the several different kinds of Hares.

Rock Rabbits.

In the same case are to be seen examples of two different kinds of Rock-rabbits or Dassies, which are referred to in the Bible as Conies. They live amongst the rocks of kopjes and krantzes, and are found all over South Africa. Strangely enough their nearest relatives are the elephant and rhinoceros! On the floor of the case is a good example of the Bush Pig, recently shot at Mount Edgecombe, near Durban; the other South African wild pig, the Wart-hog, being at present unrepresented.

Ant-Bear.

There are also examples of the two kinds of African ant-eaters, viz.:—the Scaly Anteater or Pangolin and the Ant Bear or Aard Vark. The former is remarkable for its covering of hard, horny, plates which form an admirable protection to it when rolled up, the attitude it adopts when attacked. The Ant Bear is represented by a fine example mounted in the act of licking up "ants" from an "ant-heap" which it has dug open, also by a mounted skeleton.

Kudu.

The collection of South African antelopes, which is complete except for the Sassaby, is displayed in habitat groups in separate rectangular cases, with ample space round them so that they can be inspected from every side. In the corners of the cases are descriptive labels bearing accounts of the habits, distribution, record length of horns, and native names of the occupants, which visitors are strongly urged to read. Case 3, near the door, contains a group of Kudus, consisting of an adult male standing erect, with his mate and young reclining at his side. The Kudu, which is one of the largest and handsomest of South African buck, is found in Zululand and many other parts of South Africa.

Inyala.

Sitatunga.

The next case (No. 4) contains a goup of Inyalas, without exception the most beautiful of all antelopes. Their lyre-shaped, twisted horns proclaim them to be relatives of the Bushbuck. It will be noticed that the females are strikingly different in coloration from the males. Inyalas are very restricted in their distribution and are only found in certain areas in Zululand and Portuguese East Africa. In the same case is a Sitatunga, a very interesting creature, also of the bushbuck type. It is found in the swamps of the Upper Zambesi district, and its feet are wonderfully adapted to the nature of the ground. The hoofs are unusually long and wide spreading, by which means it is prevented from sinking into the soft mud. This species was made known to science by the famous hunter Selous in 1898 and was named after him, *Tragelaphus selousi*, by the present Lord Rothschild, but it had been previously seen and mentioned by Livingstone and other early travellers. In the next case (No. 5) is a group of Bushbuck, creatures that are still to be found in the "Bush" in the neighbourhood of Durban, though unfortunately they are not so common as they formerly were.

Roan and Sable.

Blaaubok.

Springbuck.

Reedbuck.

Viewing the cases in the same order, the next one we come to is No. 6, which contains the graceful Roan and Sable Antelopes, with their handsome sickle-shaped horns, which it will be noticed are shorter and stouter in the former than in the latter. In these species both sexes carry horns, whereas in the others mentioned up to the present only the males have them. On the wall close by is an illustration of the Blaaubok, a creature closely related to the Roan and which was formerly found in Cape Colony, but became entirely extinct in 1800. Passing Case 7, in which are the lions already referred to, we come to a long case, No. 8, containing Springbuck, Impala, Reedbuck, Rooi Rhebok and Vaal Rhebok. The Springbuck, at one time roamed over all the upper, inland districts of South Africa, and at certain seasons migrated in herds of incredible numbers, but is now chiefly found in a semi-domestic state on farms in the Cape Colony, Orange Free State and Transvaal. A distinctive feature of this buck is the patch of white hairs on the middle of the back called the "fan," which can be erected at will. The Impala, or Palla, can be distinguished from all other South African antelopes by its long and slender lyre-shaped horns, by the presence of tufts of black hair on the cannons of the hind-legs, and a stripe across the buttocks. The Reedbuck and Rooi Rhebok are similar to one another in appearance and have horns of the same shape, curving forwards, but the Rooi Rhebok is considerably smaller than the Reedbuck and inhabits hills and kopjes instead of grassy or reedy valleys. The Vaal Rhebok, again, has straight, upright horns and a very curious woolly coat. With the exception of the Springbuck, the females of all the antelopes in this case are hornless.

Waterbuck.

The next case (No. 9), which corresponds in size to the last, contains Waterbuck and other water-loving antelopes like the Lechwe and Puku, also a handsome creature from the Soudan known as Mrs. Gray's Kob. In these also the females are hornless. The Waterbuck has horns which gracefully curve backwards as they leave the head and then turn forwards for the rest of their length. The Lechwe, which is found in the neighbourhood of Lake Ngami, Bechuanaland, the Upper Zambezi, and other parts of Northern Rhodesia, it will be noticed has horns very like those of the Waterbuck but smaller and more curved, especially at the tips. The Puku's range corresponds very much with that of the Lechwe. Its horns are comparatively short and stout, and are curved forwards and outwards at the base and have the tips directed forwards.

Wildebeestes.

Zebras.

Quagga.

Passing Case 10, which contains leopards, cheetah, and wild cats, we come to Case 11, in which are the Wildebeestes or Gnus, of which both South African species, viz.:—the Black and Blue Wildebeestes, are each represented by a pair. In the next case (No. 12) are examples of the Cape and Lichtenstein Hartebeestes, odd looking creatures with very long faces and sloping backs. A pair of South African Buffaloes occupies the next case (No. 13). These animals are considered by the majority of sportsmen to be the most dangerous of game, more so even than lions. They are found in Zululand and certain other parts of South Africa. The case which follows (No. 14) contains two Zebras, belonging to Burchell's variety, one mounted in standing position and the other resting on the ground. It seems difficult to conceive a more striking coloration than that of the Zebra, and it appears entirely contrary to the protective coloration of the majority of animals, but although there are exceptions to the rule this is not one of them, for at 200 or 300 yards distance the stripes fade away, as the writer knows from experience, and the creature looks of a uniform dry grass colour. In addition to Burchell's Zebra, of which several different races are recognised, South Africa possesses another species, the Mountain Zebra, unrepresented in the Museum. On the wall near this case is a photograph of another kind of South African Zebra, the Quagga, which became extinct in 1864. It was quite distinct from Burchell's Zebra, which is often called "Bonte Quagga," or "Quagga" simply. Occupying the corner near the Zebras is Case No. 15 which contains a pair of Gemsbok from Bechuanaland represented in their native haunt, the groundwork of the case being made to merge imperceptibly into the landscape painted on the curved back of the case. The horns of the Gemsbok it will be noted differ from those of all other large South African antelopes in being almost straight. They can be used very effectively against enemies, and lions have been gored to death by them.

Bontebok.

Case 16 contains members of the Duiker family, ranging in size from the Blue Duiker or "Piti," about the size of a rabbit, which occurs in the "Bush" around Durban, to the Yellow-backed Duiker of the Congo, as big as a sheep. A case corresponding in position to this on the other side of the room (No. 18) contains Bontebok and Blesbok, antelopes very much alike in appearance. The former has already seen its day in the truly wild state, and is now only found preserved on two farms in Cape Colony. A case intermediate between these contains an Eland, the largest of South African buck.

Eland.

Another point about it worth mentioning, in which, however, it agrees with the Gemsbok, is that the horns of the female on the average are longer than those of the male, which is contrary to the rule where both sexes carry horns.

Hippo.

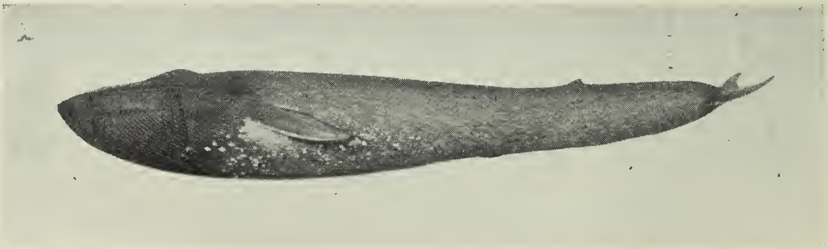
Standing near the middle of the room is a Hippopotamus. This individual was the largest in a herd that was until recently preserved at Sea Cow Lake, four or five miles from Durban, but which, unfortunately, had to be killed off because they became destructive to the sugar plantations. Standing on the floor close by is a pair of Common Rhinoceroses, with a baby two or three days old. They were shot in Zululand a few years ago. The White Rhinoceros, which is still to be found in Zululand, is represented here by a skull, and there is also a horn measuring 39 inches in the Entrance Hall.

Evolution of Horse.

In wall-case 19, near the hartebeest case, is the skeleton of a famous thoroughbred Racehorse, "Drumcree," which won the Grand National in 1903, and, moreover, ran in five Grand Nationals in his time. With it are placed models of the skulls and feet of fossil ancestors of the horse, illustrating its evolution from a four-toed creature the size of a dog, which lived about three million years ago, through a three-toed animal about as big as a donkey. The horse, as we know it, has only one toe on each foot, but two slender bones running down the back of the cannon-bone, to be seen in the skeleton, and known as the "splint-bones," are the remains of the other toes which were functional in its early ancestors.

Whales.

Another case on the same wall (No. 20) is devoted to whales. It contains miniature models, one-twelfth natural size, of the Sperm Whale, Blue Whale, Humpback and Right Whale. These models have been very skilfully made, and they convey a true idea of the form of these marine monsters when in their



Blue Whale.

natural element, for it must be remembered that, on account of their great weight and yielding surface, they lose their shape when drawn out of the water. The Humpback is the species most frequently captured in these waters. On a shelf below the Sperm Whale model, is a piece of ambergris that was taken from the intestine of a Sperm Whale recently caught here. This substance at the present time is more valuable than gold. It is used in perfumery, and at one time it was also used in medicine. On the same shelf are the horny jaws of cuttle-fish taken from the inside of a Sperm Whale. The usual food of this species consists of squids and cuttle-fishes, but it also eats fishes and even fair sized sharks, for one caught at Durban two years ago was found to contain a shark, intact, measuring 10 feet long!

Ambergris.

In the matter of diet and the manner of feeding the Sperm Whale differs from all the other large whales. They have whalebone, and no teeth, whereas the reverse is the case in the Sperm Whale. In whalebone-whales, such as the Humpback, Right Whale, and Rorquals, the row of whalebone, or baleen, hanging from the upper jaw forms a wonderfully efficient sieve for catching the small floating creatures upon which they chiefly feed. Standing in a corner near this case is a pair of lower jaws of a Sperm Whale, with all the teeth in position. It was the owner of these jaws that swallowed the shark mentioned above.

Sperm-Whale.

Sperm Whale.

FOREIGN MAMMALS.

Case 21, on the opposite side of the room, is devoted to foreign mammals, and contains representatives of groups, and otherwise specially interesting species, which do not occur in South Africa. Amongst these are specimens of the Orang Utang, Chimpanzee and Duck-billed Platypus. At the end of this case are shown, pending the provision of a special case, specimens illustrating the evolution of man. Casts of all the famous skulls of primitive man may here be seen, including that recently unearthed at Piltdown in Surrey, believed to be in many respects the nearest approach to the apes yet discovered. A complete human skeleton is also shown with them.

Foreign Mammals.

Evolution of Man.

FOREIGN HORNS AND ANTLERS.

On the wall near the rhinoceroses is a collection of foreign horns and antlers, amongst which are to be seen a complete head of the European Elk from Norway, antlers of Red Deer, Fallow Deer and Roebuck from Great Britain, and Reindeer from North America, and horns of Goral, Tahr, Markhor, Ibex, Bharal, Wild Sheep and Buffalo from India and Chamois from Europe.

Structure of Horns.

Attention should be called to the difference in structure and manner of growth in the horns of antelopes and rhinoceroses and the antlers of deer which is illustrated by sections, both longitudinal and transverse, on a board on this wall. The horn of an antelope, like that of an ox or sheep, consists of a bony outgrowth of the skull covered by a hollow sheath of horn. That of the rhinoceros has no bony core, but consists of solid horn, and is really formed of highly compressed and hardened hair. The antlers of deer are formed entirely of bone. They are shed each year and shortly afterwards new ones are grown, which are larger and more complex than the preceding ones.

Passing through the door near the Gemsbok Case (No. 15), the Fish and Reptile Room is entered.

FISH AND REPTILE ROOM.

FISHES.

The long wall-case (No. 1) in this room contains the collection of fishes, which at present consist almost entirely of Natal marine fishes. Some 100 species are represented, which is little more than one-fourth of the number known to occur, and additions are constantly being made. In many instances the specimens are accompanied by a separate pair of cleaned jaws to show the teeth which are varied in form in the different species.

Hammer-headed Shark.

On the floor of the case will be noticed the Hammer-headed Shark, whose curiously formed head is aptly described in the name. The eyes it will be noticed are situated on what corresponds to the striking faces of a double-headed hammer. Several other sharks, as well as a Sawfish and Swordfish, which are too large to go in this case, will be found on the top of the bird cases in the next room. Close to the Hammer-headed Shark is an

Electric Ray or Torpedo Ray, a fish which is capable of giving a considerable shock. The electric organs, or batteries, in which

Electric Ray.

the current is generated and stored, are situated one on each side of the body just behind the head. The current is discharged as a means of defence against enemies or to paralyse prey; and, like an ordinary electric current, it will react upon a magnetic needle, decompose certain chemical substances and emit a spark. Another specimen on the floor of the case is the Bonnet Skate, a species of devil-fish, with a wonderful set of teeth in the form of mosaic pavement, admirably suited for grinding the hard shells of molluscs and crustacea upon which it lives. Attached to the back of the case at the top left-hand corner is an odd-looking, shark-like fish, the Elephant Fish, or "Josef," as it is known at the Cape. Its chief

Elephant-Fish.

peculiarity is the fleshy appendage which projects in front of the head. This is believed to act as a sort of feeler, and possibly also assists in pushing food into its mouth. Next to it is an examples of the Natal Tarpon, of a beautiful blue and silvery coloration, with the last ray of the back fin projecting some distance towards the tail. Of the herring family are to be seen two species of local "Sardines" and the Natal Herring. They visit these shores in large numbers at certain times of the year and are netted by the Indian fishermen.

The eels come next, and they are represented in the collection by a large pink kind and the Silver-eel, both marine species. The majority of eels live exclusively in the sea, but the common European-

Eels.

eel and several closely related species enter fresh water to feed and grow, returning again to the sea to breed. They occur in the Natal rivers and others flowing into the Indian Ocean, but appear to be absent from the rivers flowing into the Atlantic. It was not many years ago that the breeding habits of the Common European Eel were discovered. Previously, all kinds of erroneous ideas were prevalent as to their manner of propagation. It is now known, however, that when five or six years old they migrate to the sea to breed, and these adult individuals never return to fresh water. Spawning takes

Breeding of Eels.

place in considerable depths, varying from 500 to 600 fathoms. The young, which are hatched from the eggs in great numbers, grow to about three inches long in the form of transparent ribbon-like larvæ known as "Leptocephali." They then cease feeding and gradually change to the form of "elvers," which are merely adult eels on a small scale, three or four inches long. These elvers ascend the rivers of the British Isles and Western Europe in millions. They follow a river up almost to its source, overcoming all obstacles, climbing weirs and locks, and many making their way across country to ponds, travelling at night through the dewy grass. Here they settle down, and, after the lapse of five or six years, during which time they grow to about three feet in length, there comes an irresistible desire to return to the sea, for reproduction and death, for, as mentioned above, they never reach fresh-water again. Such is the life-history of the Common European Eel, and, in the absence of any evidence to the contrary, we may presume the habits of our South African fresh-water eels to be similar, seeing that they are closely related species. Any observations bearing on the subject, however, would be of great scientific interest.

Flute-Mouth.

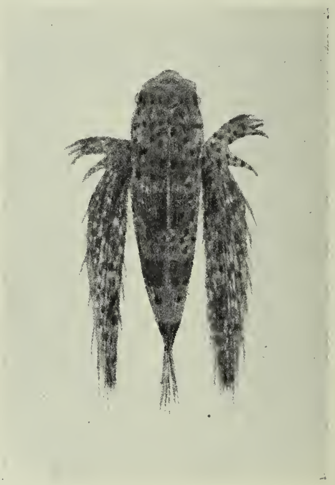
Next to the eels in the case is an example of the Flute-mouth, a strangely shaped fish, with its mouth situated at the end of a long tubular snout, and having a whip-like end to its tail. Snipe-fish and Half-beak follow next, the latter being remarkable for the absence of an upper jaw, making it difficult to understand how it feeds. A fine example of the Flying-fish is to be seen on the floor of the case, placed there for convenience, with a Flying Gurnard beside it for comparison. Next to the Half-beak, on the back of the case, are examples of the Common Grey Mullet and the Flat-head or Blue-tailed Mullet. A good example of the Sea-pike is also to be seen. This is a carnivorous fish, and a glance at the jaws placed beside it will give an idea of what a useful set of teeth it has.

Flying Fish.

Rock Cod.

The Rock Cods or Sea Perches are represented by quite a number of different species, one being clouded black and white in coloration, another deep crimson with bright blue spots, another grey with brown spots, and so on.

An example of the "Shad," or Elft as it is known at the Cape, is also to be seen. This fish visits Durban in immense shoals about August and is netted by the Indian fishermen. The Johnny, Striped Johnny, and little Pink Coral Fish are often to be seen swimming about amongst the piles of the Bluff Wharf in company with many other beautiful fishes.



Flying Gurnard.
(Dactylopterus sp.)
From Durban Bay, in resting position with "wings" folded up.
Photographed from Life.

The Common Spotted Grunter is a well-known article of food and is very frequently taken by anglers.

Sea-Breams.

The Natal Coast abounds in different kinds of Sea-breams, and a number of these are represented in the collection, viz.:—the Scotchman, Seventy-four, Galjoen, Scavenger, Englishman, Dane, River Bream, Mussel-crusher and Panga. The teeth of some of these are remarkably powerful, especially the Mussel-crusher, whose flat-crowned molars are admirably suited for crushing the hard shells of mussels and other shell-fish.

Coral-Fishes.

The various kinds of Coral Fishes and the Angel Fish are brightly coloured kinds which abound amongst the wharf piles at the Bluff. The Sea-bat, which is a relative of the Coral Fishes, is of strange form on account of the great development of the upper and lower fins. The Surgeons, of which a large blue kind, and a smaller olive-brown striped variety are shown, are so-called on account of the lancet-like spine situated on either side near the base of the tail.

Parrot-Fishes.

For brilliance of colour the Parrot Fishes hold first place. Six species are shown, which is about half the number known to occur in these waters. The name has been suggested by the powerful projecting teeth of certain members of the family, which look something like the beak of a parrot. The Horse-mackerel family is well represented in these waters, and the following species may be seen in the case, viz.:—the King-fish, Moon-fish, Pompano, Five-fingers and Prodigal Son.

Dolphin-Fish.

A good specimen of the Dolphin fish is to be seen. This species is well-known to sailors, and it has a habit of pursuing the flying-fishes. When taken out of the water it undergoes remarkable changes of colour. The flat-fishes are represented by only one species at present, viz.:—the local Dab. The Scorpion Fish and Butterfly Fish are two more wharf frequenters. The latter when alive should be handled with great care as the long spines on its back are very poisonous.

Sucking-Fish.

The Sucking-fish is interesting. It attaches itself by means of the sucker on the top of its head to Sharks, Whales, Turtles and even to boats, and by this means is carried about from place to place. A shark recently caught here had one inside its mouth adhering to the roof. The Natives of Torres Straits use it attached to a line for catching turtles. Several different kinds of Gurnards occur in our waters, but they are at present represented by only one species besides the Flying Gurnard already alluded to. A large species of Blenny is to be seen. The Blennies are frequenters of rock-pools and have a wonderful way of concealing themselves in small cavities in the rock. **Land-Fish.** A fish of considerable interest is the Land-fish or Mud-skipper (*Periophthalmus*), which occurs amongst the Mangrove trees at the head of Durban Bay. It habitually leaves the water and makes its way over the sand or mud, sometimes even climbing the mangroves, where it lies sunning itself on the look-out for flies. When disturbed it makes off by a rapid series of jumps. The Trigger Fish and File Fishes are curious looking on account of their flat shape and prominent head. **Coffer-Fishes.** But for strangeness in appearance they are surpassed by the next family, the Coffer-fishes, which have the body enclosed in a hard, bony case, three-sided in some species and four-sided in others. It is an interesting and beautiful sight to watch these odd creatures browsing up and down the wharf piles in Durban Bay. **Tobies.** The Globe-fishes, or "Tobies" as they are commonly called here, are remarkable for the habit they have of inflating themselves and floating upside down on the top of the water. When fully distended they look very funny. The Porcupine-fishes are closely related to the Globe-fishes and have the same power of inflating themselves.

AMPHIBIANS.

Case 2 in this room is devoted to the amphibians, i.e., the frogs, toads and their relatives.

The top shelf contains several interesting foreign species, amongst which the American Tiger Salamander, with its large tadpole, the famous **Axolotl.** Axolotl, merits special attention. These tadpoles were always regarded as adult animals, not connected in any way with the Tiger Salamander, until some that were reared under observation in Paris gradually lost their gills and fins and, to the surprise of everyone, changed into the Tiger Salamander! Another curious point is that as a rule these tadpoles never attain to the adult state, but actually breed in this larval condition. **Mid-wife Toad.** Other foreign specimens consist of the American Eel-like Salamander, American Newt, a male of the European Mid-wife Toad, carrying the eggs on its back, and a set of specimens illustrating the development of the European Salamander.

Plottie.

Bull Frog.

Squeaking Frog.

Of the South African frogs and toads, which number altogether over fifty different kinds, fifteen species are at present represented. The first of these is the Clawed Frog or Plathander (Dutch for flat-hand), which has been contracted into "Plottie." This species is amphibian only in name, for unlike other frogs and toads it never leaves the water, except on rare occasions to find a new home should the water dry up or its food become scarce. Another peculiar feature about it is that it has claws on the hind feet. The tadpoles and also adult examples of this interesting frog are sometimes to be seen in the fresh-water observation tank in the next room. The Bull Frog, of which a good example and also a skeleton are shown, is noteworthy on account of its immense size. Several different kinds of tree frogs will be noticed, with suckers on the tips of their toes to enable them to adhere to the smooth surfaces of leaves and tree trunks. The Burrowing or Squeaking Frog is a strange little ball-like creature, with small face and short legs. When molested it inflates itself and utters a loud, squeaking sound.

REPTILES.

The Snakes will be found in Case 3. They consist partly of specimens preserved in spirits of wine and formalin, and partly of coloured casts which give very life-like representations. There are also one or two stuffed skins.

Python.

The South African snakes are at present represented by 21 species out of a total of 104 recognised. The Blind Snakes, with which this series commences, are black or straw coloured forms, worm-like in appearance, and it is difficult to distinguish the head from the tail. The Python, which is represented by a mounted skin and also by a skeleton, is common in Natal and other parts of South Africa. It is not venomous, and kills its prey by crushing, after the manner of the Boa-constrictor of South America. More than half of the South African snakes belong to the family *Colubridæ*. These are divided into three groups as follows:—(1) consisting of those which have no grooved fangs in the upper jaw and are harmless; (2) consisting of those which have grooved fangs at the back of the upper jaw and are more or less poisonous; and (3) consisting of those which have grooved fangs in the front of the upper jaw and are all distinctly venomous.

Harmless Snakes.

The first group is represented in the case by the following species, viz.:—the Nimble Snake, the Dark House Snake, the Brown House Snake (a common species in the neighbourhood of Durban), the Spotted Snake, the Three Cornered Snake, the Mole Snake, the Natal Green Snake and the Bush Snake (which is also a green species). These are non-venomous.

Potentially Poisonous Snakes.

The members of the second group are possibly poisonous, and one at least, the Boomslang, is undoubtedly so, for a man almost succumbed to its bite at the Port Elizabeth Museum a few years ago. Of this group are to be seen the Tiger Snake, Red-lipped or Herald Snake (by far the commonest species in the Natal coast districts), the Hissing Sand-Snake, the Bird Snake, the Boomslang and the Natal Black Snake.

Representing the third group, all of which are venomous, are the Black and Yellow Sea Snake, the Black-necked Cobra, or " Mfesi " (often mis-called Ringhals), the true Ringhals, the Shield Snake and the Mamba.

Sea-Snake.

Mamba.

The Black and Yellow Sea-Snake occurs in Natal waters though fortunately it is not common. Its flattened body and oar-like tail enable it to swim freely. The Black-necked Cobra or " Mfesi " has a dangerous habit of spitting when attacked, and if the liquid ejected happens to enter the eye, as usually happens, the consequences are extremely painful, acute inflammation being set up resulting in temporary blindness. The Mamba is represented by a black example measuring 9ft. 3in., a green one 4ft. 5in., and a small black one 2ft. 3in.

The Viper family, all the members of which are venomous, is represented at present by the Puff Adder and the Night Adder.

Poison Glands.

Remains of Legs in Pythons.

Attention should be called to the series of heads of poisonous snakes, in each of which the skin has been cut away to expose the poison gland and the duct which conveys the venom to the fang. It will be noticed that the gland extends a considerable distance down the side of the body in the Night Adder, whereas in the others it is confined to the head. The casting of the skin in snakes, or sloughing as it is called, is illustrated by a complete cast skin of a mamba. Notice also a part of the skin of a python showing the claws that are always to be found near the base of the tail in this species. These claws and bones connected with them are really the remains of hind legs, and indicate that snakes have been descended from four-legged ancestors.

The foreign species shown here consist of the American Rattle Snake, Indian Cobra and Horned Viper.

Lizards.

Case 4 contains the lizards. At the beginning of the series are several species of Geckos. These little lizards can run up smooth surfaces like window-panes, or along ceilings upside down, by means of the suckers at the tips of their toes. They are erroneously believed to be poisonous by Natives and by many Europeans also. No African lizards are poisonous, in fact the only poisonous lizard is the Gila Monster of America, a specimen of which is to be seen in the Evolution Case (No. 18) in the next room.

GILA MONSTER.
Of Tropical America, the only poisonous lizard in the World.

Blue-headed Lizard.

The Blue-headed Lizard, a species of *Agama*, is familiar in the neighbourhood of Durban and many other parts of South Africa. It lives on trees, and when approached it has an odd habit of dodging one around the trunk or a branch, always keeping to the side opposite to the observer. The blue colour of the head and red of the tail become much more intense when it is molested. It will be noticed that amongst the lizards in this case there are some snake-like species, in which the legs are feebly developed, and others in which they are entirely absent. In the Two-legged Lizard, for example, the legs can scarcely be seen, and they are certainly useless for supporting the body, while in the Limbless Skink there are no legs at all. The Girdle-tailed Lizards are curious with their spiny covering. In the Giant species the tail, where the spines are strongest, is used as a weapon, and is capable of inflicting a severe blow. The Monitors, which are called

Legless Lizards.

Monitors.

Chameleons.

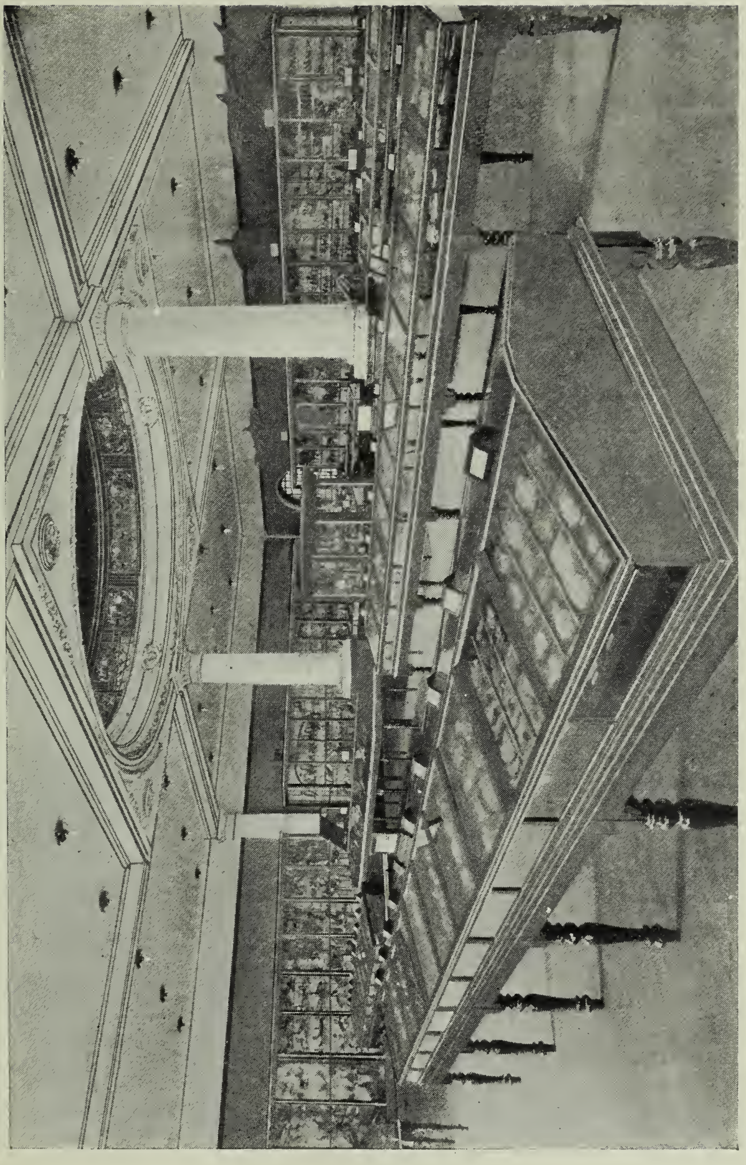
"Iguanas," or by the Dutch name "Legewaans," are large lizards, grow-to four or five feet in length. There are two species, one of which is usually found in or near water. They are very partial to fowl eggs, and on this account are often killed. Several different species of chameleons occur in South Africa, and there is an example of one of them in this case. Most chameleons lay eggs, but the small species shown here is viviparous, i.e., gives birth to living young. Although familiar creatures they are strange and interesting, nevertheless. The limbs, eyes, tail, tongue and skin are all remarkable in their way.

Flying Lizards.

The foreign species exhibited are the so-called Flying Lizard of the East Indies, which lives in trees and by means of a parachute of skin drops in a gliding manner from branch to branch, the true Iguana of America and the Blind Worm of England.

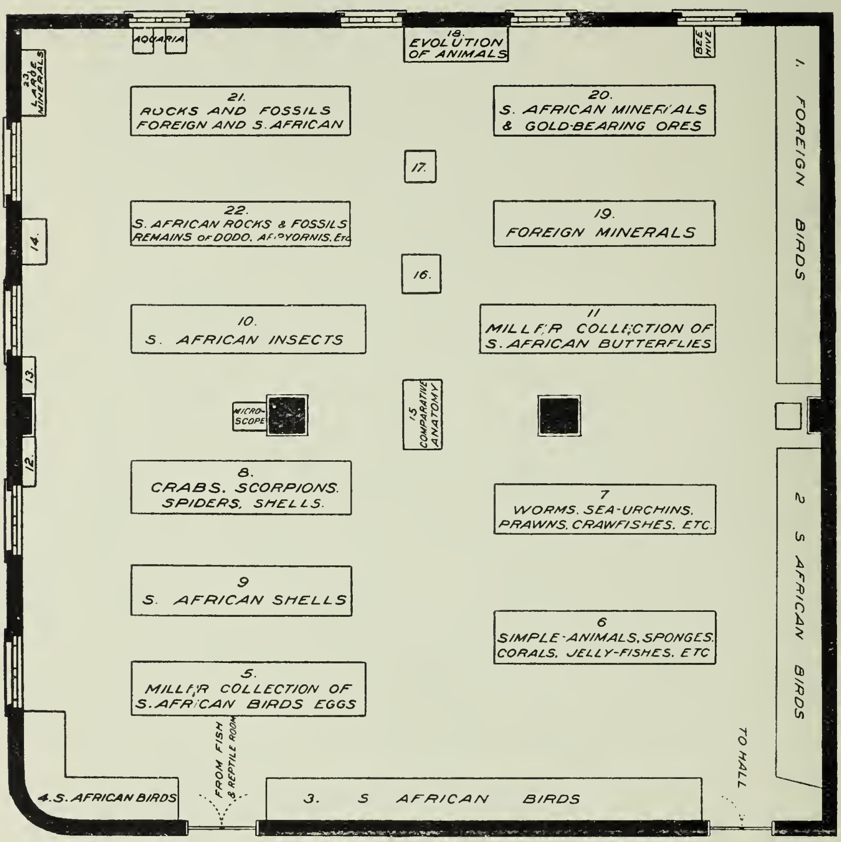
The tortoises, which are also shown in this case, are in some respects amongst the most interesting of animals. They are almost the only vertebrates which have the skeleton *outside* the body, for the shell is partly made up of enlarged spines of the backbone, partly of special bones derived from the skin, partly of the ribs and portions of the shoulder girdle. In the Anatomical Case (No. 15) in the next room, will be seen a skeleton of a tortoise with the shell shown in section, which gives an idea of the manner in which the backbone is fused with the shell.

From the Fish and Reptile Room a door leads into a large room containing the Birds, Invertebrates, and Geological collections.



General View of Room containing Birds, Invertebrates and Geological Collections.

BIRD, INVERTEBRATE AND GEOLOGICAL ROOM


AQUARIA
18. EVOLUTION OF ANIMALS
BEE HIVE
23. LARGE MINERALS
21. ROCKS AND FOSSILS FOREIGN AND S. AFRICAN
20. S. AFRICAN MINERALS & GOLD-BEARING ORES
1. FOREIGN BIRDS
17.
22. S. AFRICAN ROCKS & FOSSILS REMAINS OF DODO, AEPYORNIS, ETC
19. FOREIGN MINERALS
14.
16.
10. S. AFRICAN INSECTS
11 MILLER COLLECTION OF S. AFRICAN BUTTERFLIES
13.
MICRO-SCOPE
15 COMPARATIVE ANATOMY
12.
8. CRABS. SCORPIONS. SPIDERS. SHELLS.
7 WORMS. SEA-URCHINS. PRAWNS. CRAWFISHES. ETC.
2 S AFRICAN BIRDS
9 S. AFRICAN SHELLS
6 SIMPLE-ANIMALS. SPONGES. CORALS. JELLY-FISHES. ETC
5. MILLER COLLECTION OF S. AFRICAN BIRDS EGGS
FROM FISH & REPTILE ROOM
TO HALL
4. S. AFRICAN BIRDS
3. S AFRICAN BIRDS

PLAN OF ROOM CONTAINING BIRDS, INVERTEBRATES & GEOLOGICAL COLLECTIONS.

BIRDS.

The collection of birds occupies four wall-cases. It is arranged in two series, one consisting of the foreign species, and the other, which comprises the greater number, consisting of the South African birds.

FOREIGN BIRDS.

The foreign Birds will be found in Case 1. **Kiwis.** At the beginning of the series are examples of two species of Kiwis, from New Zealand. They are flightless birds, related to the Ostriches, Emus and Cassowaries, and are remarkable for their large eggs, which are entirely out of proportion to their size. **King Penguin.** On the floor of the case is a fine specimen of the King Penguin, and beside it a chick clothed in down, but in spite of its youthful plumage the offspring is practically as big as its parent. The method of incubation in the King Penguin is remarkable. The "sitting" duties are undertaken in an erect position, the single egg being placed on the feet and pressed closely against the lower part of the body. This peculiar habit is probably necessary on account of the cold ground in the regions it inhabits, especially is this so in the case of the Emperor Penguin of the Antarctic, which adopts the same strange method of incubation. **Kea Parrot.** Another bird worthy of notice is the Kea Parrot of New Zealand, which during recent years has become very destructive to sheep, tearing open their backs by means of its bill in order to get at the fat around the kidneys. So serious a pest has it become that the Government encourage its destruction by the offer of a reward for every one killed. **Toucan.** Attention should be called to a specimen of one of the true Toucans, which are confined to South America, as the South African Hornbills are frequently mis-called "Toucans" though they belong to quite a different family. **Quezal.** The prettiest bird in this case is undoubtedly the Resplendent Trogan or Quezal, of a brilliant metallic green colour, with breast of rich pink. It is the national emblem of Guatemala, Central America, upon the postage stamps of which it figures. The rest of this series consists chiefly of Indian birds, the gift of Colonel Harford.

SOUTH AFRICAN BIRDS.

The series of South African birds is arranged in ascending order, commencing with the Ostrich, which will be found at the end of the long wall-case No. 1, and being continued through similar cases, Nos. 2 and 3, terminating in the corner wall-case No. 4. This collection contains 712 examples representing 450 species, just half the number known to occur in South Africa. Most of the specimens were obtained locally, for Durban is particularly rich in bird-life, the "Bush" surrounding the Town harbouring a great variety of forest-loving species, while the Bay is frequented by a host of waders and other water-fowl.

Ostrich.

The Ostrich, which is the largest of existing birds, is the only South African representative of a group which includes the Rheas of South America, the Emu and Cassowaries of Australia, and the Kiwis of New Zealand, all of which are incapable of flight. As a result, the breast-bone has lost its keel, as will be seen on inspection of the ostrich skeleton in the case, which in birds of flight serves for the attachment of the muscles operating the wings. The ostrich differs from all other South African birds in having only two toes on each foot.

Examples of the Jackass Penguin will be seen at the beginning of case 2. This species is found round the coast from Algoa Bay to Damaraland. Penguins are more completely fitted for an aquatic life than any other birds, the wings having become modified into paddles for swimming. Next will be seen examples of the Great Crested Grebe and the Cape Dabchick, two species differing from nearly all other South African Birds in their curiously lobed toes.

Albatros.

The Albatroses, Petrels and their allies are distinguished chiefly by the shape of their nostrils, which open in the form of tubes. The largest member of the group is the Wandering Albatros, of which an example is shown in flight. It attains an expanse of 11½ feet from tip to tip of its outstretched wings. The Gulls and Terns follow next in order. In these the three front toes are generally completely webbed, and there is usually a small hind-toe free from the others, joined to the leg higher up. Amongst the eight species represented in the Museum collection, attention should be called to the African Skimmer, with its peculiar bill, which is flattened like a paper-knife and the upper half looks as though a portion had been broken off. The Cormorants, Darters, Gannets, Pelicans, etc., which follow next form a group distinguishable at a glance from all other birds by the form of the feet, which are totally webbed; the hind toe being more or less turned forwards and connected by web with the one next to it. They are all fish-eaters and no doubt account for the loss of great numbers of fish. The Snake-bird, also a member of the same group, is so-called on account of its snake-like appearance when swimming in the water. A good example of the Pink-backed Pelican, which was shot in Durban Bay in 1912, will be seen on the floor of the case; and attention should be specially called to the specimen of the Black-tailed Tropic Bird, shot at Umgeni, near Durban, on 5th February, 1912. This is the first recorded instance of its visit to the continent of Africa. The closely related Red-tailed Tropic Bird has been included in the South African fauna on the evidence of one tail feather picked up on the beach at Port Elizabeth some years ago.

Tropic Bird.

Ducks and Geese.

In the Ducks and Geese, which form the next group, the flat shape of the bill and the horny ridges of its inner edge form the distinguishing characteristic. Fifteen species are represented in the case. The largest member of the group is the Spur-winged Goose, and the smallest the Dwarf Goose. The Knob-billed Duck is remarkable for the large fleshy growth on its bill. Following these are shore- and marsh-haunting birds such as Sandpipers, Plovers and Snipes, which, with the Jacanas, Coursers and Pratincoles, form a group the characteristics of which are the long slender bill, grooved on each side, and long, slender legs with three or four toes to each foot. Amongst the species of this group to be seen are several worthy of mention. In the first place there are two species of Godwits from the head of Durban Bay, viz:—the Black-tailed and the Bar-tailed Godwits, both of which constitute new records to South Africa. They are migrants from Europe and Asia, but have never been known to come as far South in Africa even as the Zambesi River before. The example of Pratincole here shown was shot from a colony that was nesting at Isipingo in November, 1907. This is interesting because it has not been known to nest in South Africa before.

Godwits.

Bustards.

The Bustards, which we know as Knorhaans and Paauw, follow next, being represented by five species. It will be noticed that they have only three toes to each foot and comparatively long necks and short bills. They are all good eating and provide very good sport. There are three species of South African Cranes, viz.:—the Wattled Crane, the Blue or Stanley Crane, and the Crowned, or Kaffir Crane, representatives of each of which are to be seen standing on the floor of the case.

Cranes.

Jacanas.

The Jacanas, of which both species are exhibited, are remarkable for their extremely long toes and claws, which distribute the weight over a large area and enable them to run over the leaves of water-lilies and other floating vegetation without any difficulty. It is a strange sight to see them running across a pond, the surface of which is closely covered with duck-weed.

The Rails and Finfoot are birds of skulking habits, living amongst the undergrowth on the banks of rivers, swamps and pools, or amongst long grass in drier places. The English Corn Crake which will be found amongst them is a migratory species, spending several months of each year in Africa and the rest in Europe. Attention may also be called to the little White-spotted Crake with its nest. It is a rare species, and its nesting habits were not known until recently. The little

Button Quails.

Button Quails, or Hemipodes, form a group to themselves, and differ from the true quails in the absence of a hind-toe. The males in these birds are believed to undertake the duty of hatching the eggs and tending the young. In the Sand-grouse, of which there are four South African species, the legs are feathered down to the toes, and in certain respects they are considered to be closely related to the Pigeons.

Ibises.

All four species of Ibises are represented. The Sacred Ibis was held in veneration by the ancient Egyptians, and mummies of it are found in their tombs. The Bald Ibis, and the Green Ibis or Hadada, are less aquatic than the others and are considered very good eating. The Spoonbill is closely related to the Ibises but differs from them in the form of the bill. Following next in order are the Storks. Both the White and the Black Storks are migrants to South Africa from Europe. The former breeds in Holland, Denmark and Germany, and often builds its nest on the house-tops, returning to it every spring after its long journey to Africa. In South Africa the White Stork is known as the Locust Bird. The Marabou, one of the largest of the Stork tribe, is renowned for its plumes which are found on the under side of the tail. The two South African Flamingos are represented by several beautiful examples from Durban Bay. The Hammerkop, or Hammer-headed Stork, is a familiar South African bird, as is also its enormous spherical nest of twigs and reeds, measuring as much as five feet in diameter, sometimes placed in a tree and at other times on a ledge of rock.

Passing on to Case 3, a considerable variety of Herons, Bitterns, and Egrets will be noticed. The largest of these, and indeed the largest in the world, is the Giant Heron (temporarily placed on the floor of Case 2), which stands about four feet high. Four kinds of beautiful snow-white Egrets are shown, some of them in the act of displaying their plumes which, under the name of "ospreys," have been so much sought after by ladies as adornments for hats. The Cattle Egret, or

Egrets.

Tick Bird, lives principally upon the parasites of cattle and horses, and it may frequently be seen accompanying cattle grazing on the Durban Racecourse and Eastern Vlei. Of the Pigeons and Doves, which follow next, some 14 species occur in South

Africa, and all but three are represented in the collection. Amongst these is the Green Pigeon, a beautiful bird, considered particularly good eating. The Laughing Dove, also to be seen, derives its name from its peculiar laugh-like call which is familiar enough in Durban.

Game Birds.

The true game-birds are represented in this case by some fourteen different kinds. Their short, arched bills, strong legs which are provided with stout claws and, in the males at least, with spurs, serve to distinguish them from other birds. Altogether there are 13 species of francolins, which are commonly known as "pheasants," "partridges," and "red-wings," three species of quails, and four kinds of guinea-fowl in South Africa.

Vultures.

Secretary Bird.

We come next to the birds of prey which form a numerous group, consisting of the vultures, eagles, hawks and their relatives. They are distinguished by their strong, hooked bill and powerful feet, armed with talons. Two of the seven species of South African vultures are represented in the collection, viz:—the Griffon Vulture or Aasvogel, the commonest species, and the Black Vulture a bird seldom met with. As is well known, vultures feed upon the carcases of dead animals, to which they are directed by their extraordinary powers of sight. The Secretary Bird is one of the most interesting and useful of South African birds as it kills great numbers of snakes, employing its long legs for the purpose. But snakes do not constitute its sole diet, for the writer once found on the ground below the nest of one of these birds the remains of wild-cats, hares and meerkats, while the stomach of a female shot close by contained the remains of mice, lizards and locusts.

The Harrier Hawk, of which several examples are to be seen, is also an interesting bird in several respects. It is said to be able to bend its legs backwards as well as forwards.

Goshawks.

Of the four South African species of harriers the Pallid Harrier and the Common S. African Harrier are represented. The African Goshawk, of which several specimens are to be seen, has the habit of taking high flights and uttering a peculiar piercing squeak. Several other kinds of goshawks are found in South Africa, but are at present unrepresented in the series. The little Sparrow Hawk, in spite of its small size, is as bold as other birds of prey twice as large. It attacks fowls and young ducks, pouncing down upon them with an oblique swoop. The Black-breasted Harrier Eagle is often seen in many parts of South Africa, especially in wooded, mountainous districts. It is said to be destructive to lambs and to prey upon poultry, but its food chiefly consists of frogs and reptiles, especially snakes. The hawk eagles, of which all four species are represented in the series, are large and powerful birds. It will be noticed that like the Booted Eagle, the Brown Eagle and the Black Eagle, also to be seen, they have the feathers on the legs extending right down to the base of the toes. There are three kinds of South African Buzzards, viz:—the Jackal, Steppe, and Augur Buzzards, the last-named being seldom met with is unrepresented in the series. The two examples of Anderson's Pern are worthy of special notice as there are very few specimens of it in existence.

Eagles.

The Bateleur Eagle is a familiar bird in many parts of South Africa, where it may be seen circling in the sky for hours without any apparent movement of the wings. It can easily be recognised, even at a great height, by its short, stumpy tail. The largest of South African birds of prey is the Lammergeyer, or Lammervanger, which inhabits the mountainous districts of the Drakensberg and feeds upon carrion and bones. An example is to be seen on the floor of the case, where are also specimens of the Sea-Eagle, another powerful bird. The prey of the latter consists almost entirely of fishes, which it captures in its talons when they are swimming near the surface. The late Mr. Alfred Millar found nests of this bird on the Bluff, overlooking Durban Bay, and on one occasion he took two eggs, which are to be seen in the egg collection. Another fish-eating bird is the Osprey which at one time was frequently seen about Durban Bay. The Egyptian Kite, with its long forked tail and bright yellow bill, is seen in most parts of South Africa during the summer months. The Honey-buzzard or Pern, represented by examples from near Durban, is a visitor from Europe and Asia, and has on very few occasions been observed in South Africa.

Lammervanger.

Sea-Eagle.

Other birds belonging to the same family to be seen in the series are the Black-shouldered Kite, the Cuckoo Falcon, the S.A. Peregrine Falcon, the S.A. Lanner the African Hobby and several different kinds of Kestrels. The African Hobby is extremely rare as far as South Africa is concerned, for, besides the example in our series which was obtained at Durban in 1905, it has only on two other occasions been recorded South of the Zambesi River.

African Hobby.

Owls.

Pel's Fishing Owl.

The next family consists of the Owls, which may be termed the night birds of prey, to distinguish them from the previous family, the day birds of prey. There are thirteen different kinds of South African Owls, and all but three of them are to be seen in the series. The most interesting amongst them perhaps is the specimen of Pel's Fishing Owl from the Pongola River, Zululand, for it has rarely been obtained in South Africa. It lives in the neighbourhood of rivers, sleeping in thick trees during the day and flying over the water in search of fishes during the night. The little Cape Scops Owl and Pearl-spotted Owlet are not young, as might at first be supposed, but full-grown birds.

Attention should be called to the nest of the Bush Owl in the stump of a tree, with a snow-white nestling in it.

Bush Owl
with nest and young in stump of tree

Parrots.

Louries.

The parrots, which follow next, are represented by two species, viz:—the Red-shouldered Parrot and the Brown-headed Parrot. Of the five South African louries, three are to be seen in the collection, viz:—the Purple-Crested, Cape and Grey Louries. The last-named is frequently called "Go-away Bird" because its cry so resembles the syllables "Go-away," which it has an unpleasant way of uttering when approached, and often causes annoyance to sportsmen by giving the alarm to game. The wing-quills of most of the louries are a beautiful red colour, and this is due to a peculiar pigment named turacin, which contains a comparative large amount of copper, an element rarely found in organic compounds and never in such large quantities. In an albino example of the Cape Lourie, to be seen in case 18, it will be noticed that the red portion of the wings retains its colour while the rest of the bird is white, with the exception of the head which is also unaffected.

Cuckoos.

Of the thirteen cuckoos found in South Africa, nine are represented in the collection. They are migratory birds, only being seen here during the summer months. Instead of pairing like the majority of birds, they indulge in "free love," and the females lay their eggs in the nests of other birds, or, to be strictly accurate, the eggs are laid on the ground and carried to the nests in their bills. There they are left to be incubated by the rightful owners of the nest. The Common European Cuckoo visits South Africa during our summer months. Although at present unrepresented in our collection, its occurrence has been noted at Port St. John's, Pondoland, and several places in the Transvaal, Rhodesia, and Portuguese East Africa. The little Emerald, Golden, and Bronze Cuckoos, of metallic-green plumage, are some of our prettiest birds. Closely related to the cuckoos, although differing from them in being non-migratory and building their own nests, are the coucals, usually called "vlei louries" or by their native name "fukwas."

Honey-guide.

The Honey-guide is perhaps the most interesting of all our birds on account of its wonderful habit of leading persons to the nests of bees. It attracts attention by its persistent calls. If one walks towards it, it will fly to a neighbouring tree, in the direction of the bees' nest, and continue its urgent call. On walking again towards it, the action will be repeated, and this will continue perhaps for a mile or two. When the nest is eventually reached, the bird flies about in a very excited state calling loudly, and one soon discovers the nest by the flight of the bees. After it has been opened and the honey taken out, some of the comb, especially any containing young bees, is usually left for the bird, in expectation of which it has gone to so much trouble. There are five South African species, and all but one are to be seen in the series. They are parasitic in their nesting-habits, like cuckoos, and an example of the Scaly-throated Honey-guide is to be seen in the act of leaving the nest of a barbet, its favourite host.

Barbets.

Next come the barbets and tinker birds, the latter so-called on account of their metallic, ringing note, which resembles the sound of a hammer on an anvil. They bore holes in trees and lay white eggs like woodpeckers, from which, however, they differ in the form of the bill and tail. Eleven species are found in South Africa and six of them are to be seen in the case. A portion of tree trunk containing the nest of the Red-collared Barbet is to be seen. It has been cut open to show the chamber bored by the birds, and the female is sitting inside. A pair of South African Wrynecks, obtained at Cato Ridge in October 1914, are also to be seen. These birds are closely related to the woodpeckers, with which they agree in nesting habits.

Woodpeckers.

Four different kinds of woodpeckers are represented in the series, one of which is shown with its nest. The stiffened tail feathers of these birds serve as a seat to support the weight of the body when hunting for insects on the vertical trunks of trees.

Mouse-birds.

Trogons.

The mouse-birds, or colies, are represented by the Speckled Mouse-bird or "Indhlazi," its Zulu name, and the Red-faced Mouse-bird, or "Ishivovu," the latter being shown with its nest. The peculiar manner in which these birds run along the branches of a tree resembles the movements of a rodent and has suggested the name "mouse-bird." The only South African Trogan known as the Narina Trogon, is a very beautiful bird, the head, chest and back being a bright metallic green and the rest of the lower surface a delicate crimson pink.

Rollers.

The rollers, or "Blue Jays" as they are often called, are also birds of beautiful colouration. The name of "Rollers" is derived from their habit of rolling or turning somersaults when flying. Of the seven South African species, the European, Lilac-breasted and White-naped Rollers are shown.

Hornbills.

The hornbills, or "toucans," are strange looking birds on account of their enormous bills. Although they resemble the true toucans of South America in this respect, there is really no relationship between them. The nesting habits of the hornbills are curious. The place selected for the nest is usually a natural hole in a tree. When about to sit the opening is plastered up with mud and other material by the male bird, or by the hen herself, according to some observers. Anyhow, a narrow slit is left in the plaster, just sufficient to allow the cock bird to feed his imprisoned mate, and throughout the period of incubation he is busily employed in carrying grubs to her. The Crowned and Trumpeter Hornbills are represented in the series, as is also the Ground Hornbill, or Turkey Buzzard, which is considerably larger than the others and differs from them in habits.

Kingfishers.

We pass on now to case 4, at the commencement of which are the Kingfishers. All except two of the eleven South African species are shown. Many of them are of brilliant hues They may be divided into two groups, viz—those which live near water, feed chiefly upon fish, and usually nest in river banks; and, on the other hand, those which live in the "Bush," feed principally upon insects, and nest in banks on sides of roads and similar situations.

Bee-eaters.

The Bee-eaters, which follow next, are some of the most beautiful of South African birds. Amongst the four species represented in the collection is the European Bee-eater which is another migrant from Europe.

Hoopoes.

The Hoopoe, which occurs in most parts of South Africa, is more often heard than seen, its call of "hoop-hoop" being quite a familiar sound. The beautiful crest which adorns its head can be raised or lowered at will. The Wood Hoopoe, or Kakelaar (the Dutch for chatterer), well deserves its latter name, for it usually goes about in parties of from four to eight and keeps up a constant loud cry. A closely related species, the Scimiter-billed Hoopoe, is at present unrepresented in the collection.

Nightjars.

Three species of nightjars are to be seen, viz:—the European, Natal, and Standard-wing Nightjars. The latter is interesting on account of the long, white wing-plumes which the male sex develops in the breeding-season. The wonderful protective colouration of nightjars is well illustrated in case No. 18, where an example is shown on a portion of leaf-strewn ground. When standing a short distance away, it is almost impossible to make it out.

Swifts.

Resuming inspection of case 4, three species of swifts will be seen, viz:—the White-bellied Swift, the Black Swift and the White-rumped Swift. The last-named has the habit of appropriating the nests of the smaller Stripe-breasted Swallow, which builds under the verandahs of houses. The swifts wait until the swallows have completed building and then drive them off, making use of the stolen nest.

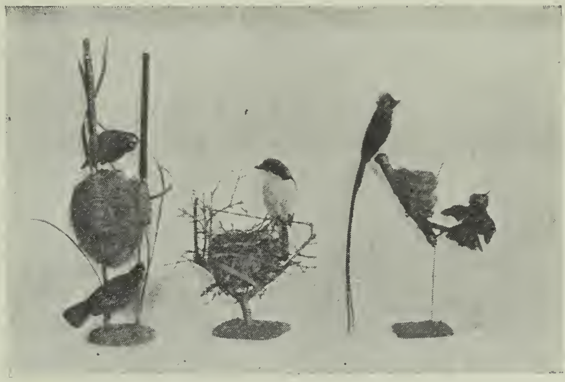
Swallows.

Next come the swallows and martins, of which eight species are shown. One of these, the European Swallow, is very common in South Africa during our summer months, arriving in great numbers about October or November and leaving again for Europe about March or April. Attention might also be called to the Grey-rumped Swallow, and the Blue Swallow, both of which are interesting and rare kinds.

Flycatchers.

The flycatchers are numerous in species, over thirty occurring in South Africa. They are bush-loving birds, and most of them are not well known on account of their retiring habits. They feed upon all manner of flying insects which they capture on the wing, making a short dart from a branch of a tree and returning to it. Thirteen different kinds will be found represented in this case.

The Black Flycatcher, White-flanked Flycatcher, and Paradise Flycatcher or Oovi, are shown with their nests and eggs. The latter is a very pretty bird, with steel-blue head and neck, and light brown body and tail. The male it will be noticed has a much longer tail than its mate.



Natal Birds, with nests.
Thick-Billed Weaver or Kaboort-eater *(on left)*, Fiscal Shrike or Jackie Hangman *(in middle)* and Paradise Flycatcher or Oovi *(on right)*.

Shrikes.

Passing the Cuckoo Shrikes, which are represented by the Grey and Black species, we come to the true shrikes or butcher birds, of which South Africa possesses about thirty different kinds. Fourteen of these will be seen in the case, and four of them with nests and eggs. They have strong bills, usually with a hook at the tip, and they feed upon insects, small reptiles and even small birds. Many of them have a habit of placing their prey upon the thorns of bushes, storing it in this way until required, and it is this coupled with their pedatory habits that has earned for them the name of butcher birds, and for the most familiar species, "Jacky Hangman."

Crows.

On the top shelf of the second section of this case will be seen examples of the three South African representatives of the crow family, viz:—the Pied Crow, the White-necked Raven and the Black Crow or African Rook. The Pied Crow is common enough in many up-country towns, where it wanders about the streets hunting for scraps of food. The White-necked Raven is usually found in hilly country, especially among kopjes. The Black Crow is generally found on farms, where it follows behind the plough for the sake of upturned insects and worms.

Drongos.

Both South African Drongos are shown, with their nests. The larger, Fork-tailed Drongo or "Ntengu" is notoriously destructive to bees, and is naturally regarded as a serious enemy by bee-keepers. Its habit of attending grass fires and flying through the smoke after insects that are driven out has earned for it the name of "Smoke-bird." Two kinds of orioles are to be seen, viz:—the Golden, and the Black-headed Orioles.

Orioles.

The former is a migratory species from the northern hemisphere, like the European Swallow, Bee-eater, Roller, etc., whose lives consist practically of one continuous summer.

Oxpeckers.

The oxpeckers and starlings follow next. The former, also known as rhinoceros birds, feed upon ticks and other parasites and it is not an uncommon sight on farms to see from six to a dozen or more walking up and down the legs, along the back, or along the underside of a cow; while away from habitations a similar sight may be witnessed on antelopes and other wild animals. Two species are recognised, one with a red bill, and the other with a yellow bill, the former being the one represented in the case.

Starlings.

The Wattled Starling is one of several species of "Locust Birds" which are protected by law on account of their usefulness in destroying these insect pests. The Plum-coloured Starling, or Verreaux's Starling, is one of the prettiest of our birds, its colour being a bright, metallic purple; while the other kinds of glossy starlings vie with it in their steel-blue dress.

Weaver-Birds.

We pass on now to the weaver birds, of which eight species are represented, five of them with their nests. The Forest Weaver is not uncommon in the "Bush" on the outskirts of Durban, where its nest, a long-necked retort, may often be seen hanging from the end of a branch. The Bottle-nest Weaver builds a similar shaped nest, but is constructed more neatly and is usually suspended over water. The Spotted-back Weaver is undoubtedly the most familiar of weaver birds at Durban. It breeds in colonies and often selects clumps of tall bamboos, from the extremities of which the kidney-shaped nests are suspended. They have no funnel like those of the preceding species. The Thick-billed Weaver, or Kabort-eater as it is usually called, builds a pocket-like nest attached to two reeds. A nest is shown in the case with a pair of birds on it; and there is also an abnormal nest in which the entrance to the actual nest is carefully concealed by a hinged flap, and on top is a partially built dummy nest, evidently for the purpose of misleading enemies.

Sakabula or Long-tailed Widowbird.
Male in breeding plumage above nest, the same in non-breeding plumage on left, and female in permanent plumage on right.

The next group consists of the bishop birds, widow birds, and waxbills, or "Roibeckies," 20 species of which are exhibited, which is barely half the number South Africa possesses. The Golden Bishop Bird and the Red Bishop Bird, or "Blood Fink," are both shown with their nests. The males of these birds assume a brilliantly coloured livery during the summer, but in the winter they are not to be distinguished from their dull-coloured mates. In the widow birds the breeding plumage of the males includes a long tail. The best known of these is the "Sakabula," or Long-tailed Widow Bird. It is familiar in most parts of South Africa, the male being conspicuous with his red and black plumage and long tail as he flies laboriously over marshes followed by his numerous wives, for he is a polygomist.

Sakabula.

The next family consists of the true finches, which include the sparrows, canaries, seed-eaters and buntings. Following these are the wagtails, four species of which are represented. The African Pied Wagtail is shown with its nest, which was built in an odd situation, being formed in the bows of a boat moored off Salisbury Island in Durban Bay. The pipits and longclaws, which belong to the same family as the wagtails, will be found on the top shelf of the next section. The longclaws are so named on account of the very long claw to the hind toe. On the same shelf are several different kinds of Larks. On the next shelf are the Bulbuls and the White Eyes. The former are represented by a pair of the Yellow-bellied Bulbul, and a pair and nest each of the Bristle-necked Bulbul, Sombre Bulbul and Black-cap Bulbul, or "Toppie." The latter is perhaps the most common and best known of all

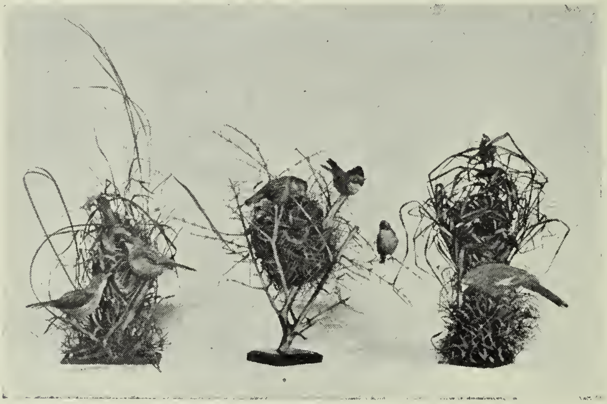
Wagtails.

Bulbuls.

South African birds. Two species of white-eyes, commonly called "twiddies," will be noticed, one of which is accompanied by its nest.

Sunbirds.

The sunbirds, or honey-suckers, occupy the next shelf, and several species are shown with their nests. They are familiar little creatures, and very pretty in their colouration as well as their ways. Their long, narrow bills are used to extract the nectar from the ends of long flowers, and when employed in this way they often hover hawk-like beneath hanging blossoms which could not otherwise be reached. An example of the Black Tit will be noticed, and also a nest of the Penduline Tit, or "Cappoc Vogel," which is extremely interesting. It is constructed of either wool or wild cotton into a wonderful felt-like material in the form of a bag, with a tubular entrance near the top. Usually a ledge is formed, just below the entrance, where the cock bird is said to roost.



NATAL BIRDS, with nests.
GRASS-WARBLERS *(on left)*, SWEE-WAXBILLS or SEESEES *(in middle)*
and WHITE-WINGED WIDOWBIRD *(on right)*.

Warblers.

The warblers constitute a numerous family and those here represented, 20 in number, occupy two shelves. They are all small birds of dull plumage and retiring habits, consequently little interest is usually taken in them. The rest of the case is devoted to members of the thrush family, which besides the thrushes, includes the babblers, chats and robins.

BIRDS' EGGS.

Millar Collection.

In table-case No. 5, close by, the Millar collection of South African birds' eggs is displayed. This collection was formed by the late Mr. Alfred D. Millar, and consists of some 2,500 eggs, representing more than 300 different kinds. It contains a number of eggs which were unknown to science until Mr. Millar discovered them, and those of the Pratincole (in section 4), Black Stork and Green-backed Heron (in section 6) afford the first evidence of these birds breeding in South Africa. Many years were occupied in the formation of this collection and considerable risk to life was often involved. Besides situations in trees difficult to reach, some of the eggs were found on the sides of steep krantzes and Mr. Millar was only able to obtain these by allowing himself to be lowered over the edge by means of ropes.

Many of the eggs it will be noticed are accompanied by a photograph of the nest in its natural situation.

Study of Eggs.

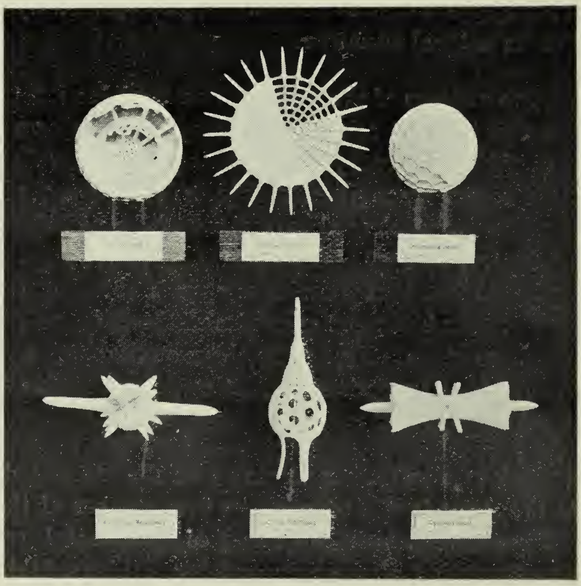
The first two sections of the case form an introduction to the study of eggs. Under the head of coloration, examples are shown of uniformly coloured eggs, of the various styles of markings and their distribution, and of variation in colour amongst the eggs belonging to one species. As examples of protectively coloured eggs, those of the nightjar among debris of leaves, and plover among pebbles are shown. Further specimens illustrate the fact that the size of eggs is not always in proportion to the bird; and examples of the different sizes of clutches are given. Following these are examples of the various shapes, viz.: round, ovate, pyriform, elliptical, etc., and finally the texture of the egg-shell is dealt with.

Collectors of eggs and other persons specially interested are urged to obtain from the Attendant a copy of the first number of the "Annals of the Durban Museum," which contains a complete catalogue of the collection, with description of the eggs and Mr. Millar's field-notes, also a coloured plate illustrating 20 of the rarest kinds.

INVERTEBRATES.

Simplest Animals.

The invertebrates will be found displayed in table-cases similar to that containing the eggs. A better idea of their classification perhaps will be obtained by viewing them in an ascending order, so they will be alluded to here in that manner, commencing, at the bottom of the scale, at Case 6. The protozoa hold the distinction of being the simplest and lowliest of animal life and of approaching most nearly to the lower plants. Indeed, with many of them it is difficult to decide as to whether they are really plants or animals, being claimed as animals by zoologists and at the same time by botanists as plants. They are extremely small, too small in fact to be seen by the naked eye, so they are illustrated here, in sections 1 to 3 of this case, by enlarged models and diagrams, amongst which are some beautiful models of the hard skeletons of radiolaria and of the shells of foraminifera. These forms live in the sea, and in some parts they are so numerous that the ocean floor is covered many feet deep with their minute shells. Amongst the protozoa are many hundreds of species, differing not only in form but also in habits. Some live in the sea, others in



Models of Radiolaria *(greatly enlarged).*

fresh water, while others again live as parasites in the bodies of man and the higher animals. In some instances these parasites cause no ill effects to their hosts, but on the other hand many give rise to serious and fatal diseases, such as sleeping-sickness and malaria in human-beings, red-water, east-coast fever and gall-sickness in cattle, and biliary-fever and nagana in horses, etc. The protozoa differ from all other animals in that they each consist of a single cell, whereas the bodies of all other animals are made up of numerous cells.

Germs of Disease.

Sections 4 to 8 are devoted to sponges. These show an advance in structure upon the protozoa, but are nevertheless extremely simple compared with all other animals. Although they resemble vegetable growths in their general appearance, there is no question that they really belong to the animal world. A glance at the specimens in the case shows what a variety of forms there are amongst them, some being like large vases, others cup-shaped, others flat, and others again of a delicate, glassy, lace-like structure, e.g. Venus' flower-basket. In these specimens the skeleton only is represented, the fleshy matter which covers it in life having been removed. The skeletons are either of a chalky, glassy or horny nature. Living sponges may commonly be seen growing in the rock-pools on the Natal coast, a yellow kind being particularly common. In life a constant circulation of water throughout the body is kept up by means of the lashing movements of threads attached to numerous minute cells in the interior; the water being drawn in through exceedingly small pores and expelled through larger apertures. By this means food and oxygen are conveyed to the interior of the body.

Sponges.

The bath and toilet sponges as we know them are the horny skeletons of certain species from the Mediterranean region, the West Indies and Central America chiefly. They are obtained in various ways. In depths of 5 to 50 fathoms divers are employed, with or without diving dresses. In the latter case a good-sized stone attached to a cord is used to assist them to descend, and after hastily gathering what sponges they can, they are drawn up quickly by means of the rope. With dresses, divers are able to stay for an hour in depths of from 5 to 15 fathoms; but only for a few minutes in from 20 to 50 fathoms. Drag-nets are used in greater depths. Sponges are prepared for commerce by allowing them to partially rot, and then squeezing and rinsing them until the dark skin and the jelly-like fleshy matter has been entirely removed, when they are hung up to dry.

Sponge-Fishing.

Corals.

The next group in the zoological scale comprises the sea-anemones, corals, jelly-fishes and the hydroids, or zoophytes. The latter are small plant-like growths which are usually mistaken for sea-weeds, and are commonly seen in Durban Bay or on the Coast growing on dead shells, submerged ropes, or rocks. A very interesting kind has recently been discovered living as a parasite on small fishes in the Bay, and amongst the shoals of young fishes to be seen around the wharves many individuals are affected. In sections 15 to 19 will be found many beautiful masses of coral of different kinds, including stag's horn corals, brain corals, organ-pipe corals, etc. Most of these have been obtained from the Mozambique Channel, some 800 miles N.E. of Durban, but small growths of coral are to be seen in the rock-pools of our coast. If they are examined closely, it will be seen that they are covered with small holes and in life each of these holes is inhabited by one of the coral animals, or polypes, which resemble minute sea-anemones. The coral is formed by these little creatures, and in the process of time their small contributions may accumulate into vast masses or even extensive islands. The Fiji Islands have been formed almost entirely by coral animals.

Flat-worms.

Bilharzia.

The next case, No. 7, contains worms of different kinds, the sea-urchins, and part of the crustacea. The first section is devoted to the flat-worms, of which the liver-fluke, the cause of " liver rot " in sheep, is shown as an example. The life-history of the liver-fluke is very interesting, passing as it does a portion of its life in the body of a pond snail. The tape-worms also belong to this group, and a complete specimen of the human tape-worm will be found in case No. 13. The early life of the tape-worm is passed in the body of the pig, and it is by eating badly cooked, " measly " pork that tape-worms find their way into the human body. Another member of this group is of considerable interest, viz :—a minute flat-worm known as Bilharzia, which abounds in some streams and rivers of Natal, and is apt to enter the bodies of persons bathing, subsequently setting up a troublesome complaint.

Round-worms.

The next section is devoted to the round-worms, most of which live as parasites in the digestive organs of mammals. An example of the common human round-worm is to be seen. Other parasitic forms belonging to this group are Strongylus of horses, and sheep; Ankylostomum and Filaria of human-beings; gape-worms of fowls; Trichina of pigs; and the eel-worms of wheat.

Rotifers.

The following group consists of the rotifers or wheel-animalcules—small aquatic creatures which, when alive, provide very interesting objects for the microscope, the motion of circlets of hairs on the head appearing for all the world like wheels revolving—hence their name. Some of them construct tubes of small pellets somewhat after the manner of caddis-worms, though very much smaller of course.

Lamp-shells.

The next group contains two very distinct classes of animals, the moss-animals, or lace-corals, and the lamp-shells. The latter look very like ordinary mollusk shells, but their structure shows that they are much simpler in organization and more closely related to the worms and star-fishes. The lace-corals, again, bear a strong resemblance to ordinary corals, but the little individuals which form them are altogether different from the coral polypes. There is one particularly fine colony to be seen. It was found growing on one of the light-buoys in the main channel of the Bay.

Sea-urchins, etc.

Sections 6 to 10 are occupied by the star-fishes, brittle-stars, sea-urchins, etc., all of which are familiar objects of the rock-pools of the Natal Coast, more especially the sea-urchins, which bore cavities into the rocks and cling so tightly to the sides by means of their spines that it is a difficult matter to dislodge them. The sea-cucumbers also belong to this group. They are called "beche-de-mer" by the Portuguese and "trepang" by the Chinese, by whom they are eaten and considered great delicacies.

Earth-worms.

Marine-worms.

The Annelids, or segmented worms, come next, and are to be found in sections 11 and 12. They are termed segmented because the bodies are divided into numerous rings or segments. The most familiar examples of this group are the earth-worms, several different species of which occur in Durban, some attaining a length of two or more feet. Included in this group also are the numerous marine bristle-worms, which are commonly found under stones between tide-marks, and the marine tube-dwelling worms, some of which live in colonies and construct masses of hard, chalky tubes, while others live singly in tubes of a leathery nature, or formed of numerous grains of sand and fine fragments of shells.

The remaining sections of this case, and also eight sections of case 8, are devoted to the Crustacea, i.e., the crabs, crawfishes, prawns and their relatives. To this group also belong many hundreds of minute creatures

Barnacles.

scarcely visible to the naked eye which live in the sea and in fresh-water, some floating helplessly with the currents, others living on the bottom and others, again, like the water-fleas, actively swimming about. The barnacles also belong here. They are of two kinds, viz:—the stalked, or goose-barnacles, and the stalkless or acorn barnacles. They were formerly classed amongst the shells, or mollusks, and it was only when their early life-histories were found out that their crustacean affinities were realized. Huxley's definition of the barnacle as an animal that stands on its head and kicks food into its mouth is a very suitable one. Barnacles attach themselves to all kinds of things, including turtles and whales; and when whales are landed at the Bluff they may frequently be seen attached to them.

Wood-borers.

Here also belong certain parasites commonly found on fishes, and a portion of a fish is shown with one of these firmly fixed to it. Notice also the whale-louse, a parasite which infests whales. Examples of a little crustacean (Sphæroma), very like a pill-bug or wood-louse in appearance, are worthy of attention, because of the destruction they cause to submerged timber by boring into it, after the manner of the Gribble of Europe. A portion of a jarrah-wood pile from a bridge at the Isipingo River is shown as an example of its destructive work.

Crawfishes.

Some beautifully preserved and coloured examples of local crawfishes, or spiny-lobsters, will be found in sections 16 to 18, and in the next one is a fine large specimen of the Cape variety. In section 20 are various kinds of hermit-crabs, which inhabit the empty shells of mollusks and carry them about, as a protection for their soft bodies and also as a retreat into which they can withdraw from enemies. In the same section are some peculiar crabs which fold up so completely that they resemble a rough pebble.

Swimming-Crabs.

Calling-Crabs.

Passing on to Case 7, we come to various kinds of swimming-crabs, recognisable by the flat, oar-like shape of the last pair of legs. The large species in section 2 is found in Durban Bay and is very good eating. The next section contains a variety of the different kinds of local rock-crabs. The soldier crabs shown in section 4, with one of their burrows, live amongst the mangroves at the head of the Bay. They derive their trivial name from their bright red and blue colours. In the same section are two or three species of land-crabs, one of which it will be seen has very peculiar pointed eyes. The group of calling-crabs or fiddler-crabs should be specially noticed. This represents the males using their one greatly enlarged pincer beckoning to the females, in their endeavours to entice them into their burrows, as may commonly be seen amongst the mangroves at the head of Durban Bay.

Japanese Giant Crab.

Robber Crab.

Before leaving the crabs it may be as well to call attention to the Japanese Giant Crab to be seen hanging on the wall close by. This measures more than 7 feet across when the legs are fully extended, but it is only an average sized individual, for the giant is said to attain an expanse of 15 feet! In a small case on the opposite side of the room is a robber-crab in the act of climbing the stem of a cocoanut palm. This species inhabits most of the smaller islands of the Indian and Pacific Oceans and feeds chiefiy upon cocoanuts, to obtain which it climbs the palms, cuts the nuts free and then descends to the ground and cracks them open with its powerful pincers.

Japanese Giant Crab,
with a common Natal Rock Crab for comparison.

Mantis-Shrimps.

Returning to Case 7, in section 8 are several mantis-shrimps from Durban Bay. These creatures are like enlarged hottentot-gods, and when taken out of the water they sit up in just the same praying attitude.

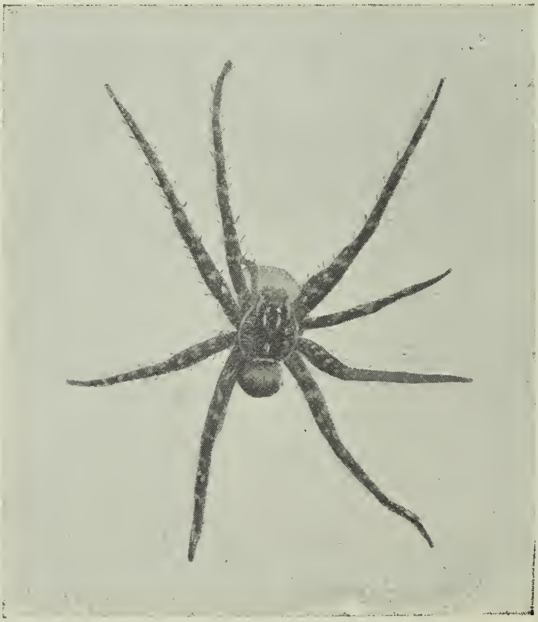
Peripatus.

Section 9 contains centipedes, millipeds and an extremely interesting little creature, something like a caterpillar to look at, known as Peripatus. It forms a connecting link between the insects and the worms, combining certain characteristics of both these groups. It is found in parts of South and West Africa, Australia and South America, in damp situations under stones, or the bark of decaying trees.

Scorpions.

The Scorpions and their relatives will be found in the next section. Of local species several different kinds are shown, and one from South-West Africa measuring as much as five inches long. Notice the whip-scorpion or scorpion-spider, a frequenter of houses in Natal and a most forbidding looking creature, but nevertheless quite harmless. Also the false spider, sometimes called "Tarantula," another harmless creature which is deceptive in appearance. It is often found in outhouses up-country and in Natives' huts.

In sections 11 and 12 is shown a series of local spiders, the largest of which is the big, hairy, baboon spider, which also goes by the name of tarantula. **Tarantulas.** This term is applied in most countries to the largest and most dangerous looking species, but strictly speaking it is applicable only to a Spanish spider, whose bite was supposed to induce a frenzied dance called the tarantella. **Trap-door Spiders.** A group of large trap-door spiders and their nests from Zululand is an interesting exhibit. It shows the carefully hidden and beautifully constructed lids to their vertical nests in the ground. Tree trap-door spiders are also to be seen, with their wonderfully well concealed nests in the bark of trees. **Fish-eating Spider.** The fish-eating spider is particularly interesting. It catches and eats small fishes and also tadpoles and fair-sized frogs. Living examples are sometimes kept in the observation-tank in this room, when this remarkable habit



Fish-eating Spider (*Thalassius*)
with its egg-case. Photographed from life, actual size.

Marine Spider.

may be seen. Another noteworthy species shown here is the spider which lives in the sea, constructing delicate silken chambers, in which it hides, amongst the masses of hard tubes formed by certain worms. When the tide goes out it emerges from its retreat in search of food.

Ticks.

The following section contains ticks, of which a series of the disease-carrying species are shown. In the same section is a large example of the American King-crab, a curious looking creature, whose name is misleading, for it is not a crab at all. The king-crabs are the only living representatives of a family related to the scorpions and spiders, which flourished in bygone ages.

SHELLS.

Pearl Formation.

We come next to the shells, or mollusks, to which sections 14 to 18 of this case are devoted. The specimens here displayed with their descriptive labels are intended to form an introduction to the study of shells. For example, longitudinal sections serve to illustrate their internal structure, the manner of growth is shown by a series representing successive stages of formation, a large shell is so labelled as to indicate the names used in descriptions for the various parts, the variety in the form and size of the eggs is illustrated by several examples, including some fair-sized eggs of the South African land snails, and one from the Barbadoes as large as a pigeon's egg! Again, left-handed spiral shells are shown in contrast with the more usual right-handed forms, protective resemblance is illustrated by examples of *Xenophora*, a form which covers itself with small pebbles or fragments of shells to avoid being detected amongst the shingle where it lives, and pearl-bearing oysters are also to be seen, including one from Japan with a culture pearl in situ.

S. African Shells.

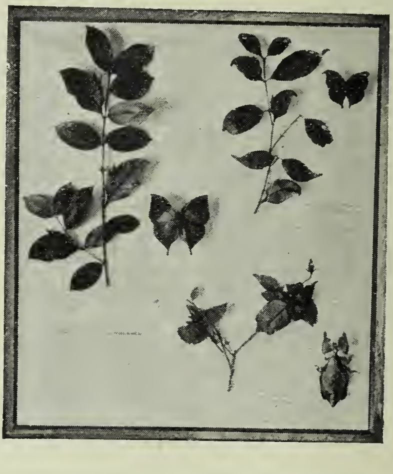
Case 9 contains the collection of South African shells, which is arranged according to Tryon's classification. In this collection over 600 species are represented, exhibiting an endless variety of shapes and colours, and many of them are remarkable for their beauty and delicate structure. It must be remembered in looking through them that they are all merely portions—the hard protective coverings in most instances, or internal supporting structures in others, of animals that were once alive, like oysters, mussels, snails and cuttle-fishes. The majority live in the sea, and similar kinds to most of them can be found washed up on the Beach, but others are found in the "Bush," creeping upon shrubs after rain, and others, again, live in ponds and streams.

S. African Insects.

Case 10, on the other side of the pillar, contains the South African insect collections, or rather selections from them, for it would require too many cases to display them all. The bulk are kept in locked cabinets, but they may be seen by collectors, and other visitors who so desire, by applying to the Attendant.

Protective Resemblance.

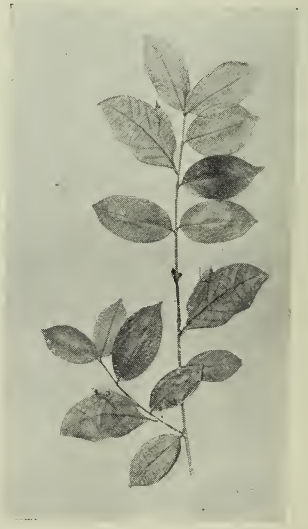
The first section of case 10 contains specimens with descriptive labels intended to impart a knowledge of the structure and life-history of insects. In the second section are some striking examples of "protective resemblance" amongst insects. There is a stick insect, for instance, which is quite a puzzle to find, for it is exactly like a twig. Then there are leaf-like butterflies mounted with wings closed amongst some leaves, and they again are very difficult to recognise, for not only is the colour that of a dead leaf but the ribs, stalk and even the little grub-eaten holes so often seen in dead leaves are represented. Again, there is a moth with wings outspread, showing its brightly coloured hind-wings, and another example of the same insect, at rest on a piece of bark, shows how cleverly these hind-wings are concealed by the fore-wings, which are the same colour as the bark. Space forbids mentioning all the examples here displayed of the wonderful way in which insects, like many other animals, are protected by their resemblance to their surroundings.



Leaf-Like Butterflies and Leaf-Insect illustrating protective resemblance.

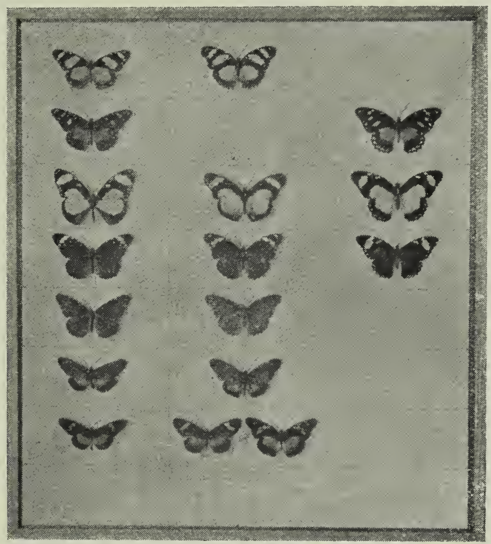
Warning Colours.

"Warning colours" and "Mimicry" amongst insects are illustrated in the next section. As examples of warning colours are shown some conspicuously coloured bees, wasps and beetles that are protected by stings or un-



Three Leaf-Like Butterflies resting on branch of pleasant odours. Their bright colours it is believed serve to protect them from their enemies, especially insect-eating birds, by acting as a warning of their unpleasant properties. In illustration of "mimicry" many harmless two-winged flies are shown beside four-winged wasps and bees, to which they bear a remarkable resemblance; and there can be no doubt that these mimics are often mistaken for the models and left severely alone by creatures that are in the habit of preying upon insects. In the same section are a number of examples of "mimicry" amongst South African butterflies. The models in this instance are protected by their nasty taste, which has been proved by experiments. They are mimicked by species which do not possess this unpleasant property, and so well is it carried out that they cannot be distinguished from one another on the wing, and even in the Museum case it is difficult to believe that they are not the same. But the resemblance is really only on the surface, for when they come to be critically compared, it is found that in all essential characters used in classification, there is no relationship between them. The section which follows contains various insects which are concerned with the transmission of disease.

Mimicry.



Mimicry Amongst S. African Butterflies.
The "models" are shown on the left-hand column and their "mimics," in the middle and right-hand columns.

Insects and Disease.

Here are shown specimens of the malarial and non-malarial mosquitoes, and by means of labels and diagrams it is pointed out how one may be distinguished from the other in the young and adult state. The Yellow-Fever Mosquito

Tsetse-flies.

Insect Pests.

or "Yellow Jack" is also shown. This species—which by the way is not uncommon in Durban—carries Yellow Fever in America in a similar manner to which the anopheline mosquito transmits malaria in South Africa. An example of the rat flea is also shown, and a label describes the part it plays in spreading plague. There are also specimens of various species of tsetse flies, one of which has been responsible for the deaths of hundreds of natives and not a few white people too, from Sleeping Sickness in Central Africa during recent years. Agricultural pests occupy the next section, and here will be seen many familiar foes to the farmer.

Beetles.

Moths.

The remaining sections of this case are filled with selections representing the orders of South African insects. One contains hottentot-gods, crickets, "white-ants," dragon-flies and ant-lions. The next contains bees, wasps and ants, many of them accompanied by their nests. This in turn is followed by a fine selection of beetles, with labels interspersed bearing the characters of the families and their habits. The next two sections are devoted to South African moths, many of them very large and extremely beautiful. In most instances their caterpillars and chrysalides are placed with them. Amongst them is to be seen a small Durban moth which is remarkable for the fact that in its caterpillar-state it lives as a parasite on a lantern-fly. (*Pyrops*).

The last section contains selections of South African two-winged flies, plant-bugs, cicadas, etc.

S. African Butterflies.

In a similar table-case, No. 11, occupying a corresponding position on the other side of the room, is the Millar Collection of South African Butterflies. This collection was formed by the late Mr. Alfred D. Millar, for many years President of the Museum Committee, who bequeathed it to the Museum. It consists of more than 3,000 specimens, and represents some 400 different species. The condition of the specimens is remarkably fine, and is due to the fact that most of them are what is termed "bred" specimens, i.e. they have been reared from the chrysalis, caterpillar or even the egg stage. It would be out of place at the present time to enter into details with regard to this collection, but it must be mentioned that it contains many extremely rare species, and not a few of considerable scientific interest. Collectors of butterflies find it very useful as a guide in naming and arranging their captures.

Wall-cases 12 and 13, on the other side of the room again, contain sets of specimens in spirits of wine illustrating the life-histories of various insects, and visitors are specially urged to read the descriptive labels accompanying them. They include the hive-bee, ant, house-fly, ant-lion, termite or white ant, and several kinds of beetles.

Foreign Insects.

An insect cabinet (No. 14) close by contains foreign insects, principally collections of butterflies, moths and other insects collected and prepared by Col. Harford in India, Switzerland, and Malta and presented by him to the Museum. They are all in a splendid state of preservation and form very interesting collections for comparison with the South African insect fauna.

MICROSCOPE.

On a small table attached to one of the pillars in the middle of the room is a microscope for the use of visitors. Its purpose is to demonstrate the lowly forms of life which are too small to be appreciated by the naked eye and also to show the minute structure of parts of larger animals. The cylindrical stage with which it is provided carries twelve slides, and each month a fresh set is shown. As examples of the objects which are to be seen we might mention wheel-animacules or rotifers from freshwater pools in Durban, various forms of microscopic crustacea from the waters of Durban Bay, the early life-history of the shrimp, prawn and crab, the life-history of a mosquito, the structure of tsetse-fly and house-fly, also the objects which are such a delight to persons who use a microscope, viz.:—radiolaria, foraminifera and diatoms.

COMPARATIVE ANATOMY.

Case 15, in the centre of the room, is devoted to the comparative-anatomy of animals. Here will be seen, preserved in spirits of wine, preparations of the digestive-organs, the blood-vessels, and the nervous system of a mammal, a bird, a fish, a frog, a crayfish, and a beetle; also skeletons of various vertebrates, viz.:—squirrel, pigeon, frog, snake, fish, and tortoise. These skeletons are mounted in half the skin, to show the relationship between skeleton and external form. There are also skeletons of a cat and a goose with all the separate bones labelled with their names, and a stuffed hawk on which is indicated the names used in scientific descriptions for the various parts. A series of specimens taken at successive stages of incubation shows the development of the chick as it takes place in the egg.

KINGFISHER'S NEST.

A small rectangular table-case (16) contains a nesting group of the Malachite Crested Kingfisher, a common Natal species. It represents a portion of a river-bank containing the nesting holes, and on the left-hand side is one of the tunnels cut in section to show the eggs in the nest.

BIRDS OF PARADISE.

A similar case (17) contains a beautiful collection of Birds of Paradise from New Guinea and the adjacent islands, grouped upon the branches of a tree. The species represented are the Red; Long-tailed; Twelve-wired; Gorget; Blue; King; Magnificent; Six-plumed and Superb.

Birds of Paradise.

EVOLUTION.

In case 18 is displayed a series of specimens to illustrate various aspects of the subject of evolution, local examples, as far as possible, having been chosen for the purpose. It should, perhaps, be pointed out that it is a mistake to speak of the "theory of evolution" for evolution is not a theory but a fact. There are various theories, however, as to the manner in which evolution is carried out, such as Darwin's theory of natural selection, Lamarck's theory based upon the use and disuse of organs and direct action of the conditions of life on the organism, de Vries' theory based upon mutations or "sports," and so on; and naturalists are by no means agreed as to how far each of these theories is responsible for evolution.

Albinism.

The top left-hand shelf of this case is reserved for specimens of various races of the domestic pigeon and a stock dove, from which they have been derived, to illustrate artificial selection. The next two shelves are devoted to the classification of animals, by which various degrees of relationship are indicated. Following these are examples of shells and insects showing variation in form, size, and colour. Albinism, an extreme variation, is illustrated by many local examples, e.g., a white "Toppie" or Black-capped Bulbul, a white fly-catcher, a white pipit, an almost white quail, a partially white drongo, or "Itengu," and a Lourie.

To illustrate the destruction of life that is always going on in nature, and as a consequence the comparatively few survivals of the large numbers produced, the flying state of the termite, the familiar "flying ant," is shown; while flies, frogs and fishes are cited as further examples.

Structures for Offence and Defence.

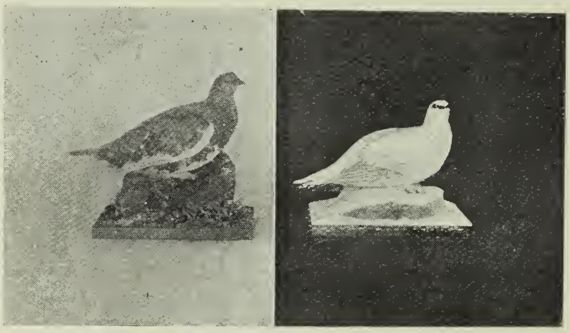
Instincts for Defence.

On the top shelf of the middle section, the different means by which animals gain their livelihood is dealt with. A Squirrel and Bully Seed-eater are examples of vegetable feeders, an owl, with mouse in its bill, illustrates flesh-eating, predaceous creatures, while large bot-fly maggots from the stomach of a rhinoceros are examples of parasites. On the shelf below are shown creatures provided with weapons for offence and defence, viz.:—a South African Hedgehog (spines), large land-snail (shell), scorpion (sting) and the skull of antelope (horns). Next follow illustrations of instincts amongst animals for defence, viz.:—the nest-building instincts of birds (that of the Penduline Tit as an example) and trap-door spiders, and the bag of twigs constructed by the bagworm, the caterpillar of a certain moth. Further illustrations of instincts for defence are a hermit-crab, which makes use of an empty mollusk shell; a crab which covers itself with seaweeds so that it cannot be seen, and certain mollusks (*Xenophora*) which plaster pebbles and other things over their shells for the same purpose; the instinct Commensalism, in which different animals live together for mutual advantage, is illustrated by a hermit-crab with sea-anemones on its shell, and the communal instinct is illustrated by the nest of a tree-ant and the compound cacoon of the moth *Anaphe panda*.

Next are shown some striking examples of concealment by colour and form, which enables some animals to escape being seen by their enemies, while it also serves predaceous animals to approach their prey. A South African Nightjar nesting on the ground amongst fallen leaves affords one of the best examples of protective colouration. Other examples shown are the butterfly, *Eronia cleodora,* whose underside resembles a partly decayed leaf; and leaf-like and twig-like mantises.

Seasonal Change.

Seasonal change of colour is illustrated by two stoats and ptarmigans from Scotland, one of each being brown, as they appear in summer, and the other two perfectly white, as they are in winter when the snow is on the ground. Two chamæleons differently coloured serve to illustrate the rapid changes of colour that certain animals are able to undergo for the purpose of concealment.



Ptarmigan of Scotland.
In summer plumage on left and in winter plumage amid snow on right.

Warning Colours.

Many conspicuously coloured insects and other animals are protected by certain means, such as stings or unpleasant odours or tastes, and their bright colours it is believed serve to notify the fact to creatures which otherwise might attack them. To illustrate this the following examples are shown, the black and white Muishond, which can eject a very powerful and objectionable smell; the Gila Monster of America, bright red and black in coloration, which is the only poisonous lizard in the world; and many wasps and bees "protected" by their stings.

Mimicry.

Mimicry is illustrated by several harmless, "unprotected," two-winged flies which exactly resemble some of the warningly-clad bees and wasps, and are consequently mistaken for them and so preserved from attack.

On the top shelf of the last section, it is shown that the same plan of structure may be traced throughout the members of the same phylum, or large group, of animals. For instance, the brittle-star, starfish, cake-urchin and sea-urchin are all members of the phylum *Echinodermata*, and, although differing in appearance, yet show the same five-rayed structure. Again, the similarity in structure in the limbs of vertebrates is demonstrated by the fore-limb of a lemur, the wing of a fruit-bat, the wing of a bird, and the fore-leg of a monitor lizard, with skeletons placed beside them in which the corresponding parts have been similarly painted.

The next shelf deals with the life-history of individual animals. It is pointed out that all animals develop from a single cell. The lowest animals remain permanently in this condition, but in the higher animals the original cell—the egg—multiplies to form a complex organism. In their development the higher animals pass through a form of gastrula, but certain creatures, like sponges, and polyps for instance, to all intents and purposes remain permanently in this stage. A fish, a tortoise, a bird, and a mammal are shown with illustrations of their early embryos, and it is pointed out that these very different animals are indistinguishable in the early stage of their development. Specimens and diagrams are shown to illustrate the metamorphosis that certain animals like the frog, butterfly, barnacle and the prawn for example undergo during development. It is sometimes only in the early larval stages that the relationships of animals are revealed. For example, the barnacle was always thought to be a mollusk until the discovery that it developed from a " nauplius " form of larva proved that it was really a crustacean.

On the following shelf are three examples of " primitive animals, viz:

Tuatera of New Zealand.
A survival from remote times. Its relatives are known only in the fossil state.

—peripatus, king-crab and tuatera, which have survived from remote times with comparatively little alteration. They are not closely related to any existing animals, but in the case of the king-crab and tuatera their relatives have been found in the fossil state.

Primitive Animals.

On the next shelf is a series of lizards, showing varying stages in the loss of limbs, from one with four well developed legs to an entirely limbless species. There is also a portion of the skin of a python showing the claws near the base of the tail, which are vestiges of hind limbs, indicating that snakes, too, have been descended from four-legged ancestors.

The last shelf deals with sexual differences. A pair of Yellow-shouldered Cuckoo-shrikes illustrate permanent sexual difference of colour in the adult; while a pair of Red-collared Widow-birds in summer and winter plumage serve as examples of seasonal difference of colour between the sexes. Difference of form in the sexes is illustrated by a pair of Huia birds from New Zealand, in which the bill is quite a different shape in the male to what it is in the female, and also several different kinds of beetles in which horns and other appendages are present only in the male sex.

AQUARIA.

Fresh-water Tank.

In front of a window near the corner will be seen two observation tanks, or aquaria, in which small aquatic creatures are kept alive for observation of habits. One contains fresh-water and the other sea-water. In the fresh-water tank from time to time may be seen dragon-fly larvæ, pond snails, fish-eating spiders, water-beetles, tadpoles in different stages, water-scorpions, fishes, fresh-water shrimps, water-mites, fresh-water crabs, examples of the entirely aquatic clawed-frog, known as " Plotty," water-boatmen, etc. And in the marine tank are shown at different times hermit-crabs, sea-anemones, pipe-fish, blennies, hydroids, sea-hares, marine-worms, sea-slugs, small crabs, shrimps, and limpets. Such interesting occurrences as the emergence of the dragon-fly from its larvæ, the shedding and swallowing of its skin by the Plotty frog—in one operation occupying about half a minute—the deliberate planting of sea-anemones on its shell by a hermit-crab, and the growth of a parasitic hydroid on a small fish have been observed in these tanks.

Marine-tank.

OBSERVATION BEE-HIVE.

In front of the window nearest the foreign bird-case (1) is an observation bee-hive, so arranged that the bees go in and out through the window. Here the worker bees can be seen coming in with their hind-legs covered with pollen, storing the honey and pollen in the cells of the comb, feeding the grubs, cleaning out the cells for the queen to lay her eggs, and, if fortunate, the queen herself may be observed laying her eggs, one in each cell. Hours might be spent with advantage at this exhibit alone, for there is no doubt that living bees provide one of the most interesting and profitable of studies.

Observation Bee-Hive.

GEOLOGICAL COLLECTIONS.

These consist of the minerals, rocks, and fossils; and they occupy four table-cases and two wall-cases in this room.

FOREIGN MINERALS.

Minerals.

Case 19 contains the foreign mineral collection, in which 200 different kinds are represented. It is arranged according to Dana's system of classification. The first three sections of the case are intended to form an introduction to the study of minerals, the characters by which the different kinds are distinguished being illustrated by examples. They are arranged under the following headings, viz:—systems of crystals, grouping of crystals, pseudomorphs, structure, tenacity, scale of hardness, cleavage, fracture, colour, and lustre.

"Seeing Double."

Special properties possessed by certain minerals are also illustrated here, e.g., the magnetic property of magnetite, the "loadstone" of ancient mariners, is emphasised by iron filings attracted to it, and the double refraction of iceland-spar is demonstrated by a white cross of paper placed underneath it, which appears double.

SOUTH AFRICAN MINERALS.

The collection of South African minerals will be found in Case 20. These are arranged under the headings of their chief metallic constituent, so that all the copper-bearing minerals are to be found together, all the iron-bearing minerals together, and so on. In section 1 will be seen samples of oil-shale, lignite, and coal. Section 2 contains the arsenic-bearing minerals, orpiment, and mispickel; antimony ore, stibnite; molybdenite; native silver; mercury-ore, cinnabar; and some good examples of visible gold. Sections 3, 4 and part of 5 contain copper-bearing minerals from Namaqualand, N.W. Rhodesia, Zululand, etc., while in the latter part of section 5 are the lead-bearing minerals, galena, crocoite, and pyromorphite. The next section (6) is devoted to tin ores, amongst which are some splendid examples from Vlaklaagte in the Transvaal. Iron ores, consisting of limonite, hæmatite, magnetite, etc., occupy sections 7 and 8. In the latter are also to be seen the colbalt-bearing minerals, smaltite and erythite; manganese ore; and the zinc-bearing minerals, sphalerite, calamine and tarbuttite.

S. African Minerals.

The calcium compounds are shown in section 9. They consist of flourite, calcite, aragonite, and gypsum. In section 10 are examples of the magnesium mineral magnesite; also barytes and monazite. The compounds of silicon occupy section 11; while sections 12, 13, and 14 are devoted to the silicates, amongst which will be seen some fine samples of mica, asbestos and tourmaline. The remaining six sections of this case contain samples of gold-bearing ores from the principal producing mines of the country, and many others that are now of historical interest only.

Gold-Ores.

FOREIGN ROCKS.

In the first ten sections of case 21 is the type collection of foreign rocks. These are arranged in the usual order of classification. Section 1 forms an introduction to the series. Here will be seen a set of specimens showing how rocks are broken up by the weather, decomposed into fine particles which go to form sand and mud; also coins fixed in solidified larva, having been dropped into it in the molten state; and a slab of flexible sandstone which is of considerable interest. This is a natural stone, which has the peculiar property of bending, and when held in the hand yields of its own weight in a most uncanny fashion. The explanation is that the grains of quartz of which it is composed are loosely dove-tailed together as it were, and are thus allowed a certain amount of movement without falling apart.

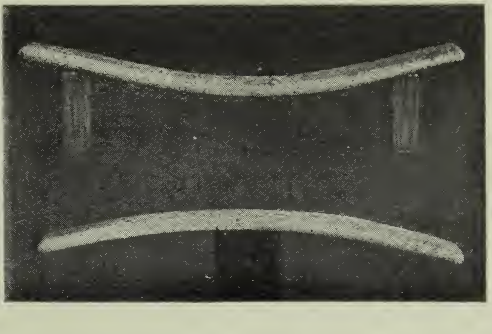
Rocks.

Stone which Bends.

SOUTH AFRICAN ROCKS AND FOSSILS.

S. African Rocks.

The collection of South African rocks commences at section 11 of this case (21) and ends at section 11 of case 22. The first section contains geological maps and correlation tables, followed by five sections containing the igneous rocks, and these in turn by three sections containing the metamorphic rocks.



Flexible Sandstone,
supported at ends in upper figure, and in middle in lower figure.

Fossils.

The sedimentary rocks which follow next are arranged according to their age, commencing with the most recently formed, and leading on to the oldest. Interspersed among them is the collection of fossils, which are placed with the rocks of the same age as those in which they have been found. Some particularly fine ammonites from Pondoland will be seen in section 20. In the second section of the next case (22) will be seen fossil wood with borings of the toredo, a worm like shell, which at the present day continues its destruction of timber and is the cause of trouble to boats and the piles of wharves. [Specimens of toredo, recently obtained, will be found in a wall-case near No. 7.] In sections 5 and 6 are to be seen the bones of dinosaurs, extinct reptiles of a kangaroo-like form, from the Orange Free State.

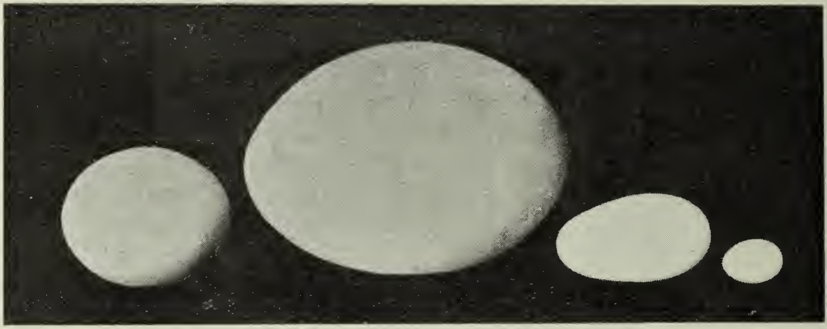
Diamond Grounds.

Sections 12—17 contain diamond-bearing grounds and associated minerals from the Premier and Kimberley diamond mines. With the Premier specimens is shown a model of the famous Cullinan Diamond, which was discovered there in 1905. It was purchased two years later by the Transvaal Government for £150,000 and presented to his late Majesty King Edward VII. Subsequently, it was cut into five gems, models of which are also shown, which now adorn the Imperial Crown and other regalia.

In section 18 is temporarily placed an exhibit particularly worthy of attention. It consists of a considerable portion of the skeleton of the dodo, an extraordinary looking bird about the size of a turkey which at one time lived on the island of Mauritius, but became entirely extinct about the year 1680. In section 20 is perhaps an even more interesting exhibit, viz:—the egg and bones of an immense fossil bird of Madagascar, whose name is *Æpyornis,* which signifies a tall bird. The egg measures 31⅞ inches around the longest circumference and 26¾ inches round the middle. It completely dwarfs an ostrich egg, and it is estimated that one of these eggs holds as much as six ostrich eggs and 12 dozen of the domestic fowl!

Dodo Skeleton.

Enormous Egg.



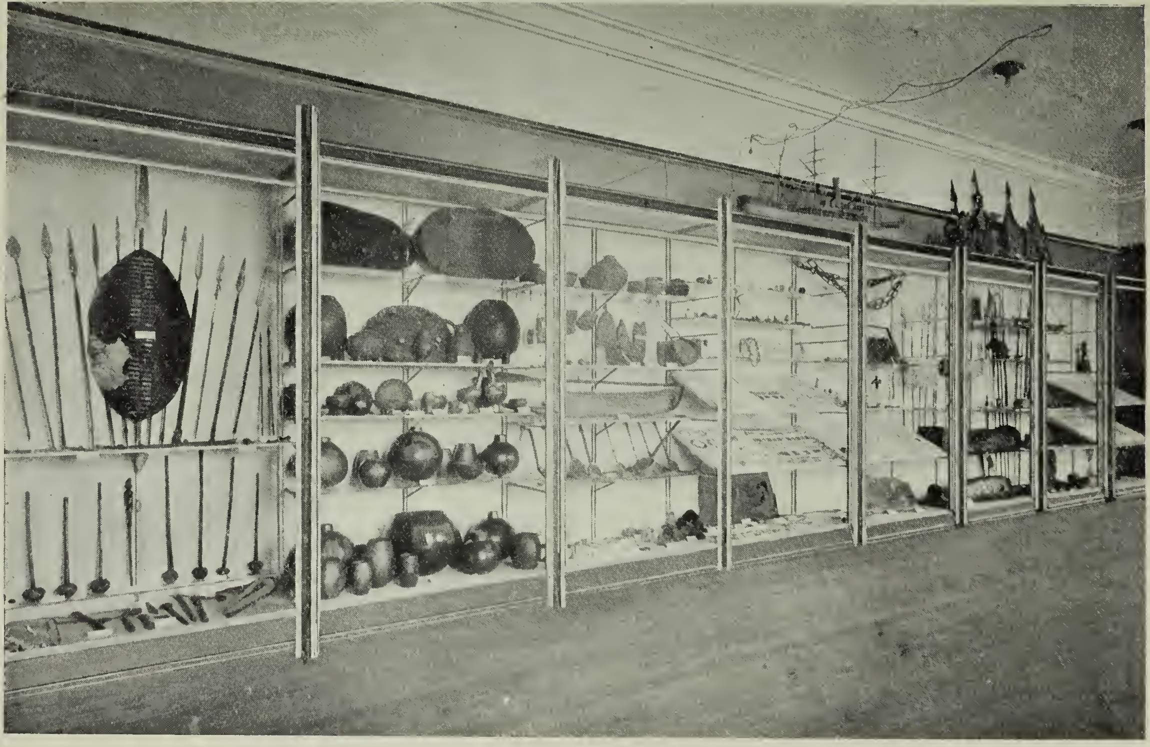
Egg of Aepyornis,
compared with egg of ostrich on left, and of albatros and common fowl on right.

Case 23, standing in the corner, contains various specimens of minerals, rocks and fossils which are too large for the table-cases. There is a splendid example of fossilized wood, consisting of a portion of a tree-trunk showing notches where the branches have been, and also the cellular structure of the wood. Another exhibit in this case worth mentioning is a slab of sandstone containing beautifully preserved fossil fishes from the Orange Free State.

Fossil Tree.

Wall-case 24 contains ornamental stones of various kinds.

Another room, entered by a door on the left of the Entrance Hall, contains the Ethnological Collections and Articles of Local Interest.



Cases Containing Collections Illustrating Manners and Customs of Natives.

ETHNOLOGICAL AND LOCAL HISTORICAL ROOM.

NATIVE WORK.

Weapons.

Pottery.

The long wall-case in this room is principally occupied by the articles of various kinds made by South African Natives, but principally consisting of those belonging to the Zulus. The first section contains weapons such as assegais, knobkerries, and axes, and also a cow-hide shield. In the next section is a fine collection of Zulu pottery, including some enormous beer-pots which were once used by the famous chief Cetywayo. Amongst some examples of Basuto pottery, in the same section will be seen a pair of drinking vessels in the form of guinea-fowls. There are also some large wooden water-pots and meat-dishes.

Beadwork.

Language of Colour.

The next section contains basket-work, a native-made model of a canoe as used by the Waganda of Lake Victoria Nyanza, wooden spoons and ladles, head-rests, etc. In the following section will be found collections of snuff-boxes, pipe-bowls of carved soapstone, articles of carved bone, such as small combs, snuff-spoons and perspiration scrapers, also a fine collection of beadwork. Many of these articles of beadwork are made by the girls and sent to their lovers as letters, the colours of the beads employed and their arrangement having a meaning which is understood amongst them. For instance, the simplest form of letter (ubala abuyise) is known as the "ingeje," and consists of a single string of beads of two colours. If the colours used should be white and pink in equal numbers it would mean that the girl's heart was full of love (white beads), but her lover's poverty was as great as her love (same number of pink beads), implying an earnest appeal to him to work hard to purchase sufficient cattle for the "lobola" or payment necessary to buy her from her father or guardian.

The next section contains, in addition to more beadwork, clay figures of animals made by herd boys, witch-doctors' necklaces, and Bushman paintings and engravings on rock, their beads of ostrich egg-shell, and poisoned arrows with bow and quiver.

EGYPTIAN MUMMY.

In section 6 is an Egyptian Mummy taken from a tomb at Ekhmim, Upper Egypt. It belongs to the Ptolemaic period and is over 2,000 years old, but for a mummy this is by no means ancient when it is remembered that the art of mummifying was practised in Egypt as early as 4,500 B.C., or in other words 6,500 years ago!

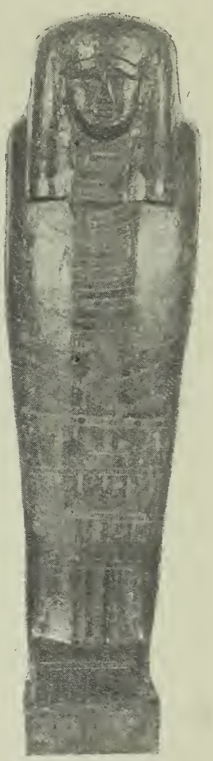
The Egyptians went to so much trouble to preserve the bodies of their departed from decay because they believed the soul returned to inhabit the body after a very long time.

Preparation of Mummies.

In preparing the mummy three different methods were employed, according to Herodotus the Greek historian, the most expensive costing equivalent to £240 and the second £80, while the third was comparatively inexpensive. The first method consisted of the removal of the brain and intestines, filling the body with myrrh, cassia, and other astringent substances, then placing it in salt for ten weeks. After this it was carefully washed and wrapped up in linen bandages, smeared with gum, as much as 400 yards sometimes being used. It was then placed in a coffin, usually of sycamore wood, which was often coated with plaster and painted similarly to that shown here. In the case of distinguished and wealthy persons large stone coffins were often used. In the decorations on the pastboard laid on the mummy in this case, and also on the coffin-lid on the shelf above, the portrait of the deceased is crudely represented, and there are various emblems and figures of gods connected with the dead. For instance, on the upper part of the chest of the mummy is a scarab with extender wings indicating the protecting influence of the god Ra. On the lower chest is a figure of the goddess Nut, the protectress of the dead, holding a white ostrich feather in each hand, emblems of truth.

Decorations on Mummy.

Immediately below this is a representation of the corpse on a bier, which is in the form of a black leopard, and the departing soul in represented by wings above it. The decorations on the coffin-lid correspond closely with those on the mummy, with one or two additions. On the side of the lid, in the position of the shoulder, is the head of a hawk, which represents the god Horus, who introduced the souls of the departed into the presence of Osirus, the judge of the dead and the ruler of the kingdom where the souls of good men were admitted to eternal felicity. Below this, on the edge of the lid are figures of the jackal-headed god Anubis, whose part in the final judgment consisted of weighing the good actions of the deceased in the scales of truth. The staff in his hand is in the form of the emblem of life. In the middle of the coffin-lid, are the eyes of Osirus, indicating no doubt his all-seeing presence. Near the foot of the lid, is an inscription



Coffin of Mummy.

in hieroglyphic characters probably giving the name and position of the deceased and the offerings presented on his behalf to the gods. Grouped around this inscription are small figures, all more or less alike, which represent the 42 assessors of the dead who attended at the final judgment. Each appeared for some particular sin, and they individually examined the deceased to see if he was guilty of the sin they represented.

On the shelf above is the naked foot of another mummy, which gives an idea of the shrivelled and discoloured appearance of the flesh when unwrapped.

ARTICLES OF LOCAL INTEREST.

German Flag from Windhoek.

The last section of this case is devoted to articles of local interest, and is at present temporarily occupied by various things brought back from South-West Africa by members of the Durban Light Infantry and other local regiments. Hanging on the wall close by is the large German flag which was hauled down at Windhoek by General Botha on 12th May, 1915, when the Union Jack was hoisted in its place.

First African Railway.

A portion of the first railway used on the continent of Africa, viz:—that from the Point to Durban, is to be seen in this room. It consists of a few feet of rails with their old fashioned pot-sleepers and tie. In some quarters priority is claimed for the Capetown to Wellington line, and it is true that the construction of the Cape line was commenced three months earlier, but the Durban line was completed and opened for use first.

The first printing-press used in Natal is also to be seen. It was imported in 1850 by Mr. J. Cullingworth.

Bell of H.M.S. Southampton.

Another thing of considerable historical interest is the ship's bell of H.M.S. Southampton, a frigate of 50 guns which in 1842 brought relief to the British garrison and settlers at Durban when besieged by the Dutch. This was in response to the appeal conveyed by Dick King to Grahamstown, when the journey of 600 miles was accomplished on horseback in 10 days, through hostile country and in face of many natural obstacles, including the crossing of numerous rivers. A memorial to Dick King is to be seen on the Esplanade at the foot of Gardiner Street, representing him on horseback as he started off on this famous journey.

Model of R.M.S. Saxon.

Occupying the middle of the room is a model of the Union-Castle mailboat "Saxon," measuring 12 feet, and in another part of the room is a model of the Government tug "Harry Escombe" which is in use at the Port.

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A Scientific Publication.

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5.—On a collection of Rotifers from Natal by C. F. Rousselet.

6.—An annotated list of Mosquitos occurring at Durban Bay, by F. W. Edwards, of the British Museum (Natural History). (28 species are enumerated).

CONTENTS OF PART III., PUBLISHED 20TH APRIL, 1916.

1.—Description of a new fresh water Fish from Zululand by Dr. G. A. Boulenger, F.R.S., of the British Museum (Natural History).

2.—On some Natal Fishes collected by Mr. Romer Robinson, with descriptions of two new species, by T. C. Regan, M.A., of the British Museum (Natural History).

3.—On a new species of Hydroid living as a parasite on fishes in Durban Bay, by Dr. E. Warren, of the Pietermaritzburg Museum. (With four plates and a text figure).

4.—On a collection of South African Bees, chiefly from Natal, by Prof. T. D. A. Cockerell. (Contains descriptions of 22 new species).

5.—Descriptions of three new Spiders, belonging to the Durban Museum, by John Hewitt, B.A. of the Grahamstown Museum. (Accompanied by two text-figures).

6.—On some parasitic insects (Anoplura and Mallophaga) of mammals and birds from Zululand, with descriptions of two new species, by G. E. Ferris. (Accompanied by 12 text-figures).

7.—Description of a new species of hunting-spider from Zululand, by S. Hirst, of the British Museum (Natural History). (Accompanied by a text-figure).

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The Museum is located in the Municipal Buildings and occupies the first floor of the south block, the Art Gallery being above, and the Public Library on the ground floor The entrance is in Smith Street.

Hours of Opening.

The Durban Museum is open to the Public free of charge each week-day from 10 to 5, except Wednesday when the hours are from 10 to 2. It is also open on Saturday evening from 7.30 to 9.30.

Regulations.

Smoking is strictly prohibited.

Visitors are not permitted to touch exposed specimens or the glass of cases.

Sticks, umbrellas, parasols, bags and parcels must be left with the Attendant.

Children under 10 years of age are only admitted when in charge of some responsible adult.

Dogs are not allowed to be brought into the building.

Persons desirous of taking photographs should apply to the Curator for permission.